

catalog 130
neumann condenser
microphones



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Introduction

Microphones

60 years of developing and manufacturing condenser microphones are invested in the products presented in this catalog. It contains information on the current Neumann microphone production programme of the Series fet 80 and fet 100. Fet 80 is a registered trade mark used to designate Neumann condenser microphones supplied with current by the 48 V phantom powering circuitry introduced in 1966 by Georg Neumann GmbH. This method of powering was standardized in 1971 as P 48 under DIN 45 596. The Series fet 100 is likewise phantom-powered at 48 V, but is equipped with a transformerless circuit which was used for the first time with the TLM 170 microphone. All the microphones of this series can be recognized by the 100 in their type numbers. The programme contains an extremely versatile miniature microphone system, three switchable standard microphones differing from each other in respect of circuitry and acoustic properties and also three stereo microphones, one of which has been specially developed for news gathering purposes. The line-up of stereo microphones also includes the dummy head, which is estimated as a very interesting means of artistic creation. Among the special microphones for specific applications are found two interference-tube or shotgun microphones of different lengths, which cover a wide field of sound recording, and the soloist's microphone with its virtual imperviousness to pops and handling noises and which is thus eminently suitable for arduous on-stage work.

Powering units

The microphones described in this catalog require 48 V phantom powering as defined in DIN 45 596. They receive this form of power from the mains or battery units which we supply in each case. Power supply units of other manufacturers work equally well with our microphones, provided they comply with DIN 45 596. This applies also to central power supply systems as may be present, for instance, in sound mixing installations.

Accessories

Each microphone is accompanied by a list containing a selection of available accessories with catalog numbers. Further accessories are listed in the sections towards the end of the catalog.



Surface finish

In answer to many requests from users – especially in the field of television – Neumann now offers all microphones with matt black, non-reflecting surface finish. The satin nickel finish supplied hitherto continues to be available on request for the fet 80 series. Please indicate the preferred finish when ordering – respective order numbers are given with each item. This applies also to accessories.

Service

Should your microphone ever become defective, we will repair it as quickly as possible. This applies also of course to valve microphones and older transistor microphones which are still in use today in numerous studios and for which we are still able as a rule to supply accessories. Please let us know your requirements. Although we still repair these older microphones, it may be, in the case of models which are over 30 years old, that we have no other option but to carry out a virtual restoration, as replacement parts may have to be specially made on a "one-off" basis. There may also be problems with valves that are no longer available at all or not in the desired quality. All the microphones in our catalog have been developed in close cooperation with users. This will continue to be our policy, and we are always glad to receive suggestions. Even if they cannot all be implemented, they give us valuable pointers for the development of future microphones.

Informative material

Each microphone comes with an operating manual in two languages and a circuit diagram. In addition, Neumann published a handbook a few years ago with the title "Microphones" by Dr. G. Boré, which is now in its second printing. This contains well-founded information on the physical fundamentals of microphones and also conveys a survey of most of the products of other manufacturers which are currently available. We will be pleased to send you a copy. Naturally this cannot deal with all the many problems involved in the use of microphones. Therefore, if other questions arise, please do not hesitate to get in touch with us! We will be glad to make every effort to assist you.

Miniature Condenser Microphones



KM 100 System

The variable condenser miniature microphone system Series fet 100 comprises – as is usual – condenser miniature microphones with various directional characteristics. Since – as is not usual – active microphone capsules are used which, in conjunction with an output stage, constitute the complete microphone, it is possible to use a wide range of accessories between the active capsule and the output stage. This results in the creation of an extremely efficient miniature microphone system capable by reason of its variability of adaptation to an enormously wide range of audiological situations. The fet 100 circuitry – already used with great success in the TLM 170 condenser microphone – embodies the following advantages for the miniature microphones: shorter construction, transformerless technique, higher output for the same sound pressure level, lower equivalent noise level and some 20 dB greater loadability. Since the entire microphone circuitry is incorporated in the active capsule, these improvements are also fully exploited when the capsules are employed independently of the output stage.

The system consists of the KM 100 output stage (Cat. No. 87348 00010) and the active microphone capsules

AK 30	omnidirectional	Cat. No. 12219 501
AK 40	cardioid	Cat. No. 12217 501
AK 45	cardioid with bass roll-off	Cat. No. 12221 501
AK 50	hypercardioid	Cat. No. 12222 501

plus a wide range of accessories.

A microphone assembled from a capsule and an output stage can then be ordered under the following type designations:

KM 130	omnidirectional	Cat. No. 12219 004
KM 140	cardioid	Cat. No. 12217 004
KM 145	cardioid with bass roll-off	Cat. No. 12221 004
KM 150	hypercardioid	Cat. No. 12222 004

The scope of delivery comprises a wooden case containing the capsule, the output stage, a WNS 100 Windscreen and a SG 21/17 mt Swivel Mount.

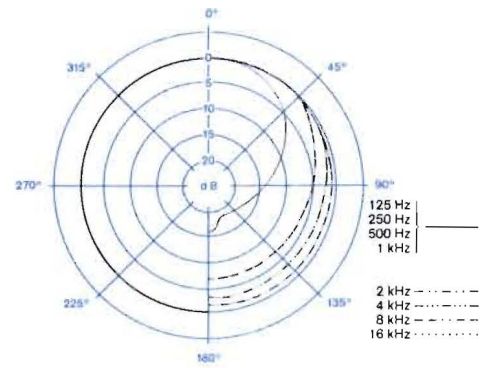
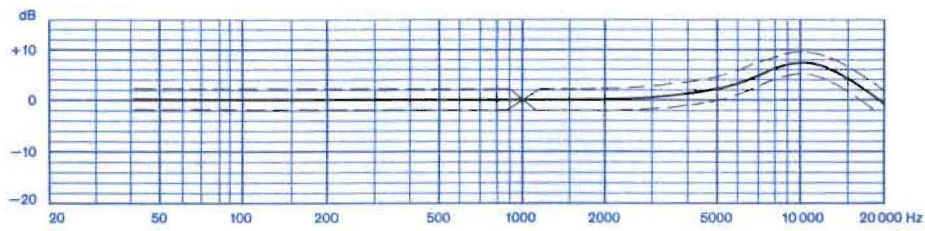
The two following combinations can be supplied as a stereo microphone set:

- 1) SKM 140: Wooden case with 2 KM 140, 2 KA 100 Cable Adapters, 2 LC 3 Cables, 1 STH 100 Stereo Clamp Cat. No. 12225 002
- 2) SKM 150: Wooden case with 2 KM 150, 2 KA 100 Cable Adapters, 2 LC 3 Cables, 1 STH 100 Stereo Clamp Cat. No. 12225 004

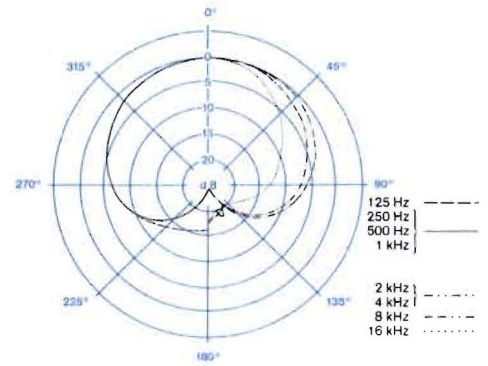
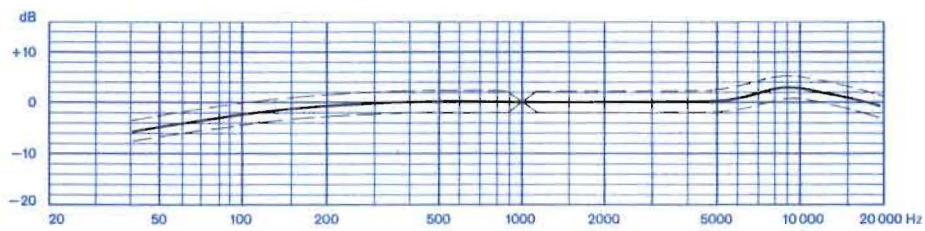
Accessories for a wide variety of uses as mono and as stereo microphone are illustrated in the following. Microphones and accessories are supplied in matt black finish. Three-pin Lemo plug connectors are used for connections within the microphone system; the modulation output is routed to a three-pin XLR connector.



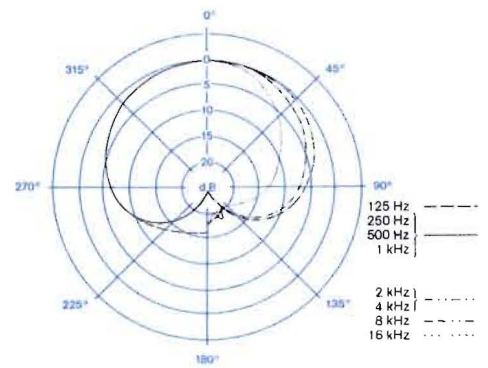
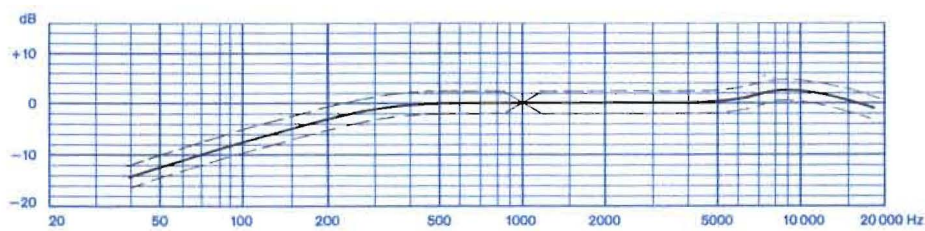
KM 130



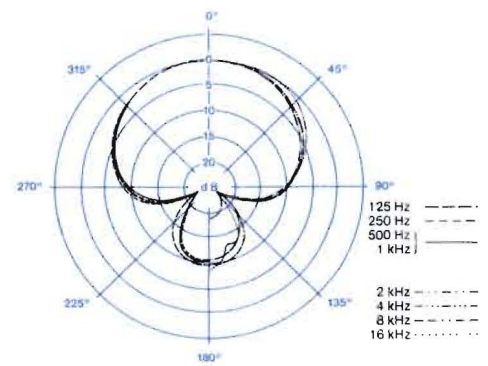
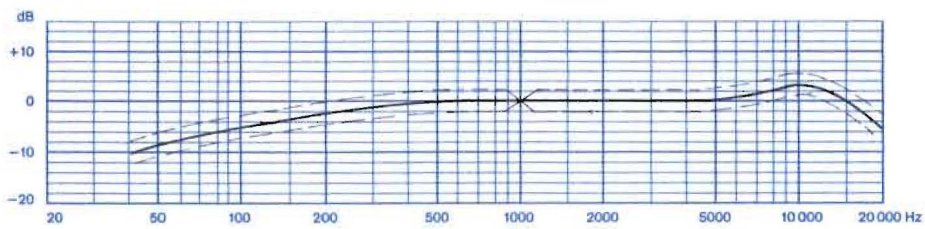
KM 140



KM 145



KM 150



Miniature Condenser Microphones



EA 21mt



MA



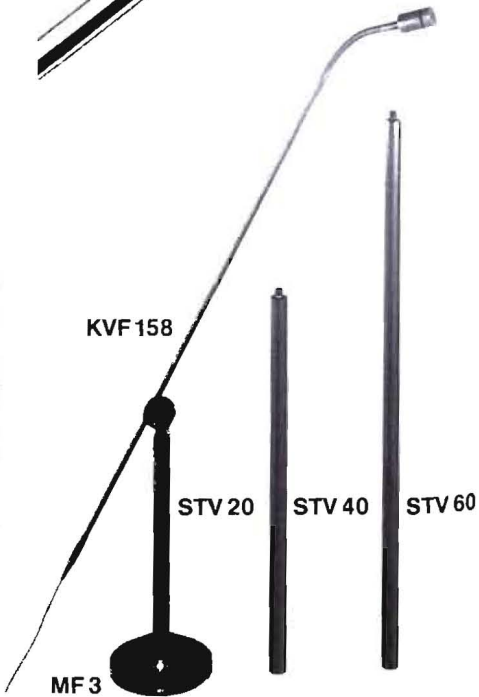
MA

Type		KM 130	KM 140	KM 145	KM 150
Directional pattern					
Acoustic operating principle		pressure transducer	pressure gradient transducer	pressure gradient transducer	pressure gradient transducer
Frequency range	Hz	40–20 000	40–20 000	40–20 000	40–20 000
Sensitivity ¹⁾	mV/Pa	12	15	14	10
Rated impedance	ohms	50	50	50	50
Equivalent loudness level due to inherent noise	DIN 45405 (1983) CCIR 468-1 (1976) dB	27	25	26	27
	DIN/IEC 651 (1981) dB-A	16	16	17	18
S/N ratio re 1 Pa at 1 kHz	CCIR dB	67	69	68	67
	A-weighted	78	78	77	76
Max. SPL for less than 0.5% THD ²⁾	without dB	140	138	138	142
	with preattenuation	150	148	148	152
Total dynamic range of the microphone amplifier ³⁾	dB	124	122	121	124
Power consumption ⁴⁾	mA	2	2	2	2
Weight	g	80	80	80	80
Dimensions	diameter	21	21	21	21
	length mm	92	92	92	92

- 1) At 1 kHz into 1 kohm load impedance, 1 Pa \approx 94 dB SPL
2) THD of the microphone amplifier when an input level equivalent to the capsule output at the specified SPL is applied.
3) Referred to DIN/IEC 651 A-weighted equivalent loudness level.
4) All microphones are 48 V \pm 4 V phantom powered (P 48 according to DIN 45596/IEC 268-15 A).



MKV



KVF 158

STV 20

STV 40

STV 60

MF3



MNV 100



MNV 87 mt

STH 100



MNV 21 mt



SR 100

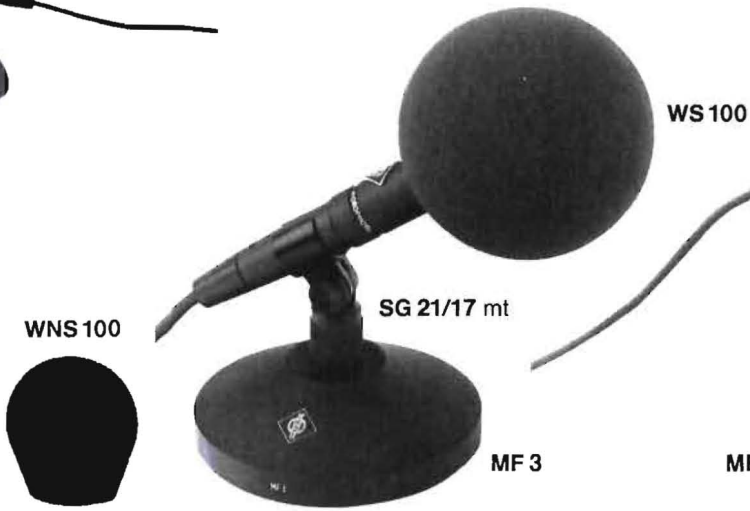
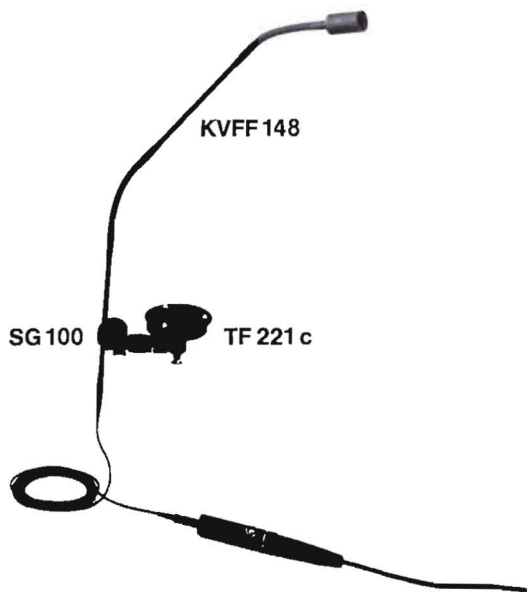
STV 60

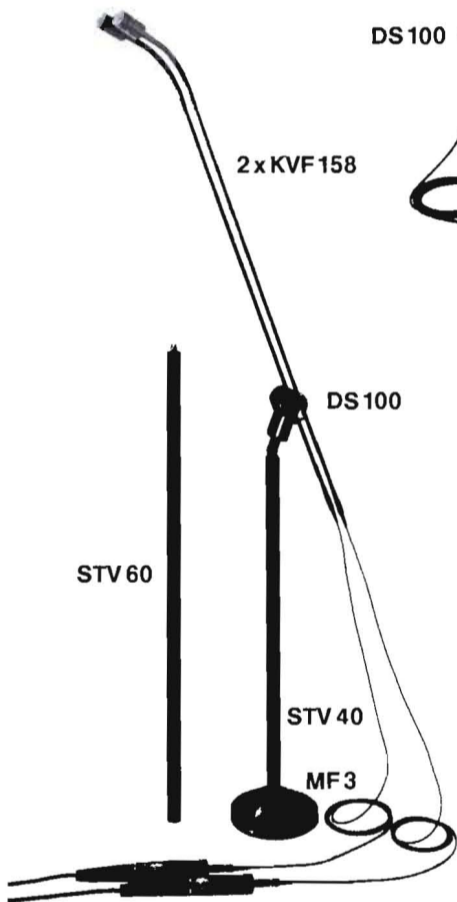
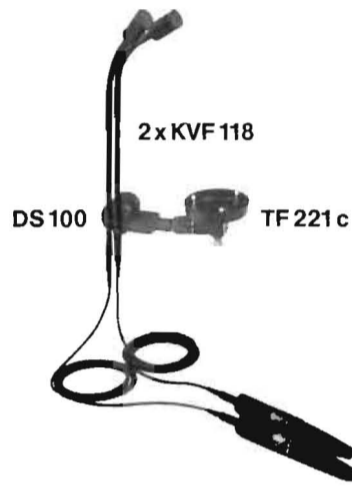
Accessories for the KM 100 System

Cat. No.

DS 21 mt	Double mount	11432 002
DS 100	Double swivel mount for tubes with \varnothing 9 mm	12441 002
EA 21 mt	Elastic suspension	10448 002
KA 100	Cable adapter	12444 002
KVF 118	Capsule extension with gooseneck, extended length 300 mm	12437 004
KVF 158	Capsule extension with gooseneck, extended length 700 mm	12437 008
KVFF 148	Capsule extension with double gooseneck, extended length 570 mm	12437 010
LC 2	Extension cable 5 m	11341 001
LC 2	Extension cable 10 m	11341 002
LC 3	Locking cable 3,5 m	11342 001
MA	Microphone fishpole with elastic suspension	11419
MF 2	Table stand with rubber mounted thread \varnothing 60 mm	12414 001
MF 3	Table stand \varnothing 110 mm	12442 001
MF 4	Floor stand \varnothing 160 mm	12447
MKV	Quick-release tilting clamp	12404 001
MNV 21 mt	Auditorium hanger with clamp \varnothing 21 mm	11435 002
MNV 87 mt	Auditorium hanger with threaded adapter	11435 004
MNV 100	Auditorium hanger with clamp \varnothing 9 mm	11435 007
MTS 21 mt	Table stand, tripod	11414 002
SG 21/17 mt	Swivel mount	10349 004
SG 100	Swivel mount for tubes with \varnothing 9 mm	11340 002
SGE 100	Swivel mount with rubber mounted thread	11345 002
SMK 100	Gooseneck with cable	12438 002
SMK 100-2	Double gooseneck with cable	12438 004
SR 100	Stand tube in combination with KVF 158	12446 002
STH 100	Stereo clamp for Coincidence- and ORTF-use	12440 002
STV 20	Stand extension 20 cm	10387 002
STV 40	Stand extension 40 cm	10387 003
STV 60	Stand extension 60 cm	10387 004
TF 221 c	Table flange with rubber mounted thread	12422 001
WNS 100	Windscreen black	12443 001
	Windscreen red	12443 002
	Windscreen green	12443 003
	Windscreen yellow	12443 004
	Windscreen blue	12443 005
WS 100	Windscreen black	11406 001

Miniature Condenser Microphones






Condenser Studio Microphones

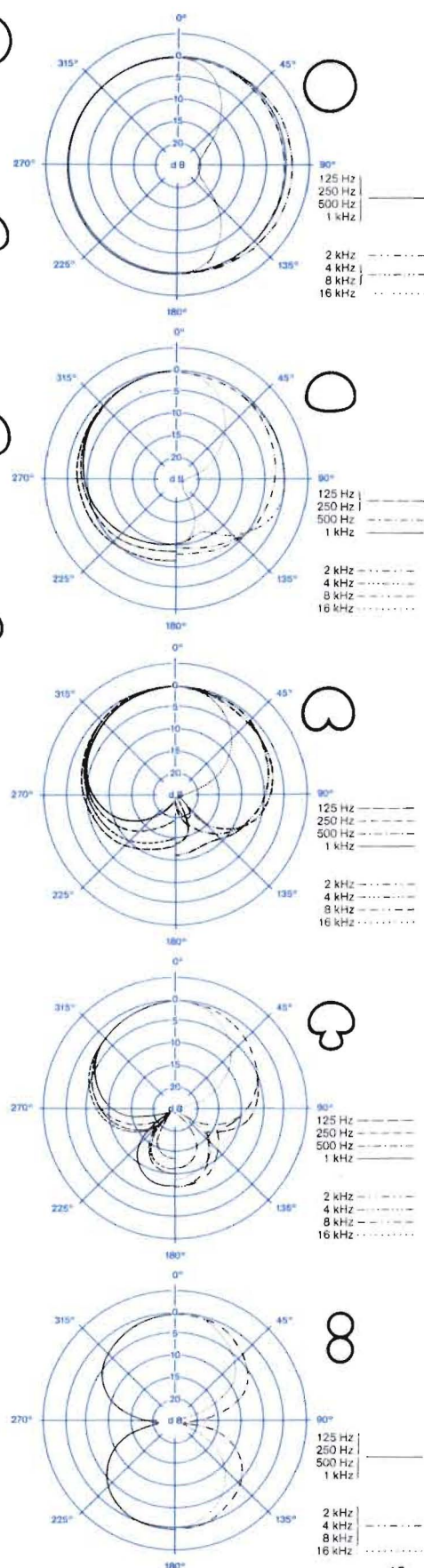
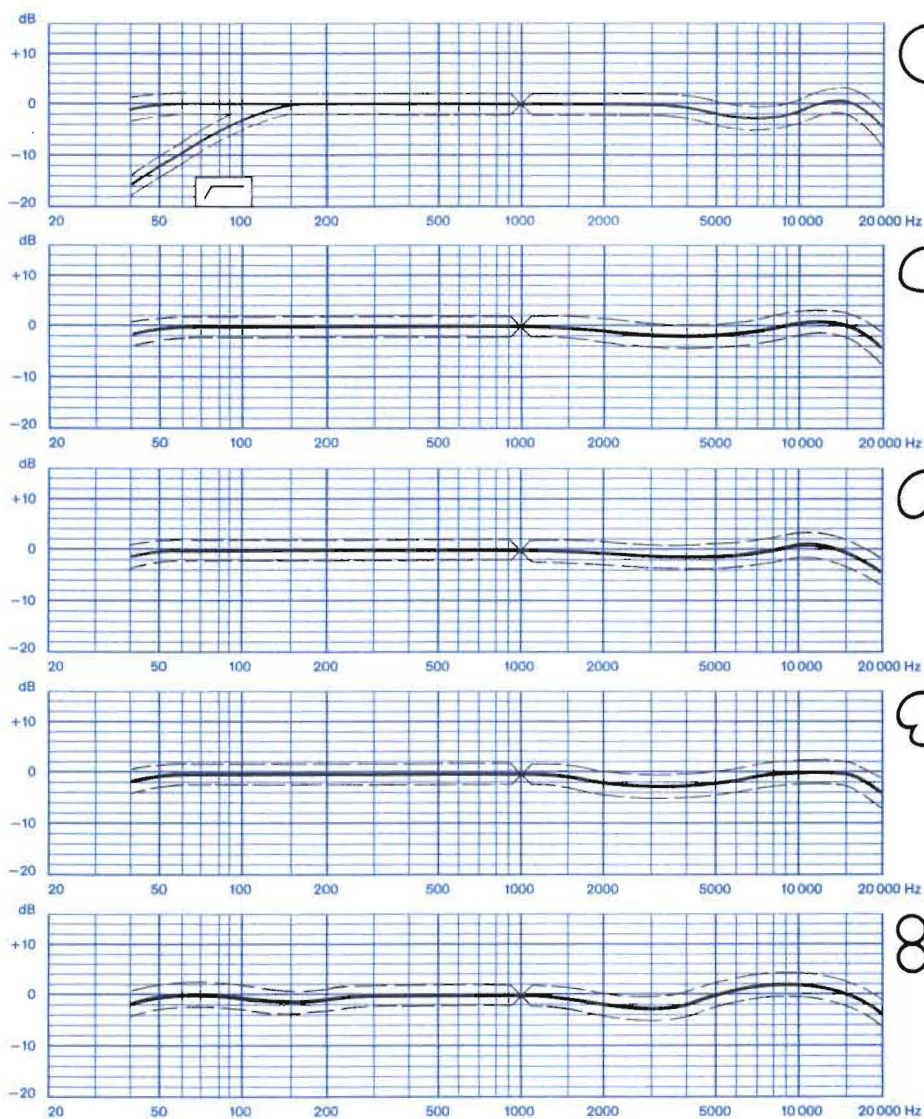


TLM 170

The TLM 170 condenser studio microphone is provided with a transformerless circuitry. The direct, balanced signal output was achieved through the use of a completely new kind of electronic circuit, while maintaining a high degree of interference freedom and low current consumption. It has been possible to reduce significantly the self-noise level of the microphone compared to similar types. Five directional characteristics may be selected: omni, wide cardioid, cardioid, hypercardioid and figure-8. Excessive output levels, caused by high sound pressure levels, may be reduced by a 10 dB attenuation slide switch, while another switch rolls off frequencies below 100 Hz to eliminate low frequency interference. This microphone may be operated from the usual 48 V phantom powering circuits but will perform identically when operated from a 24 V phantom source as well, without the need for switchover. The TLM 170 is equipped with a tiltable, elastically suspended mounting bracket, which isolates the microphone effectively against mechanical noise interference.

Type	TLM 170	
Directional pattern		
Acoustic operating principle	pressure gradient transducer	
Frequency range	Hz	40–20 000
Sensitivity ¹⁾	mV/Pa	8
Rated impedance	ohms	100
Equivalent loudness level due to inherent noise	DIN 45405 (1983) CCIR 468-1 (1976) dB	26
	DIN/IEC 651 (1981) dB-A	14
S/N ratio re 1 Pa at 1 kHz	CCIR dB	68
	A-weighted	80
Max. SPL for less than 0.5% THD ²⁾	without preattenuation	140
	with preattenuation	150
Total dynamic range of the microphone amplifier ³⁾	dB	126
Power consumption ⁴⁾	mA	2
Weight	g	625
Dimensions	diameter	60
	length	152

1) ... 4) see page 8



Designation	Type	Surface	Cat. No.	Cat. Page
Condenser microphone	TLM 170	satin nickel	12208 003	12
Condenser microphone	TLM 170 mt	matt black	12208 004	12
Mains power supply unit	N 48 i-2	matt black	11299 002	34
Battery supply unit	BS 48 i	matt black	11298 002	34
Cable with swivel mount	IC 4	satin nickel	11311 007	38
Cable with swivel mount	IC 4 mt	matt black	11311 016	38
Extension cable	IC 3	satin nickel	11311 003	38
Extension cable	IC 3 mt	matt black	11311 004	38
Elastic suspension	EA 170	satin nickel	12418 001	46
Elastic suspension	EA 170 mt	matt black	12418 002	46
Auditorium hanger	MNV 87	satin nickel	11435 003	45
Auditorium hanger	MNV 87 mt	matt black	11435 004	45
Floor stand	M 31	satin nickel	12407 001	41
Table stand	MF 4	matt black	12447	40
Windscreen	WS 89	black	12403 001	46

Condenser Studio Microphones



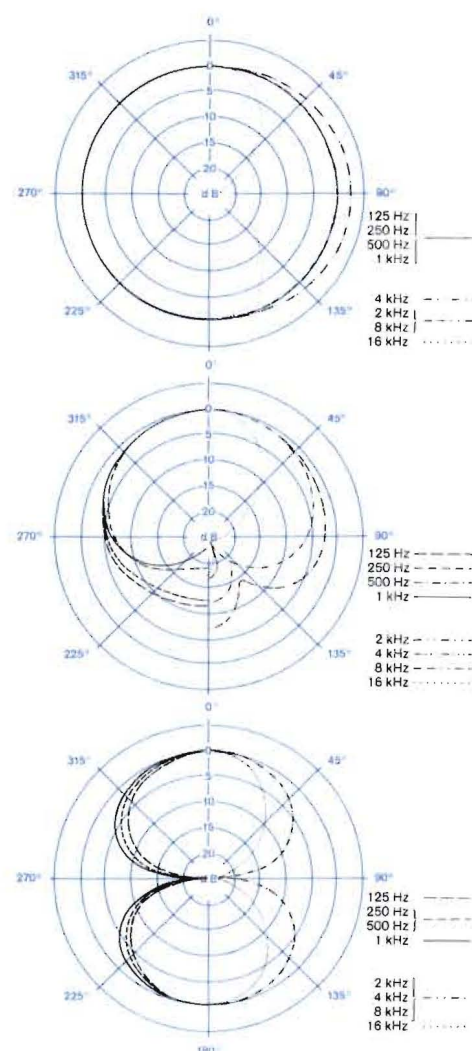
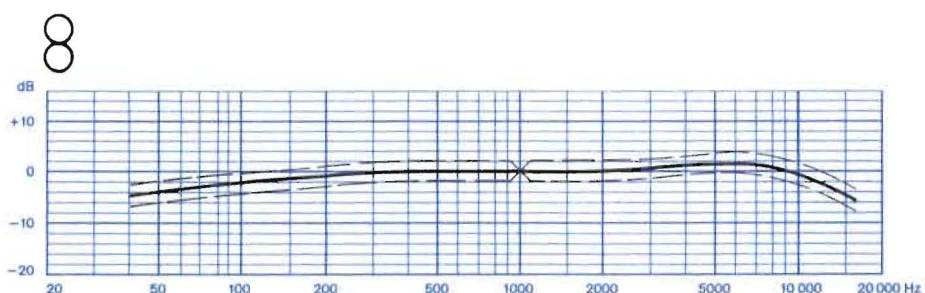
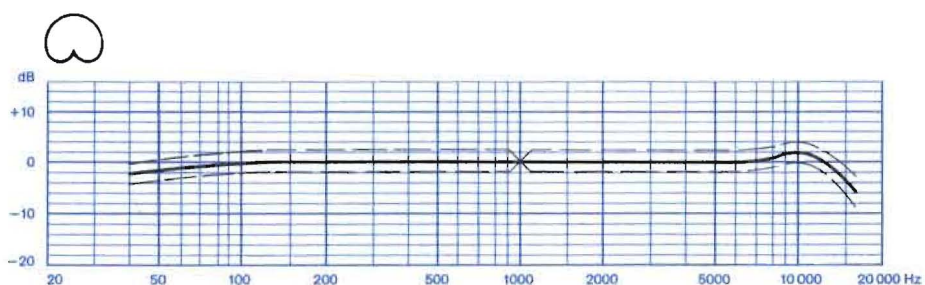
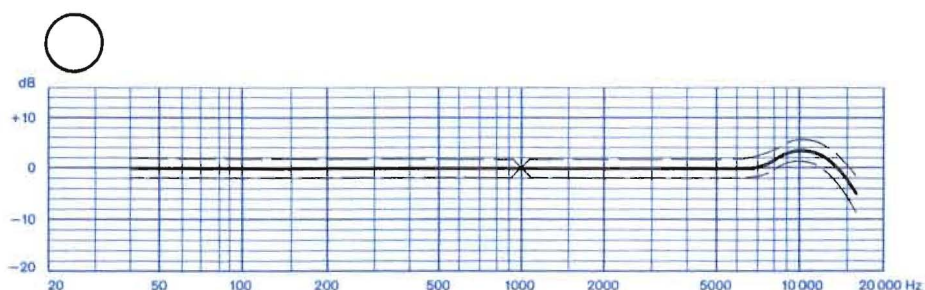
U 87 Ai

The solid state condenser microphone model U 87 Ai is the electrically improved successor of the U 87 i, which is indeed the best known and most widely used microphone of the fet 80-series. The dual membrane capsule uses evaporated gold on polyester film which has proven to be the most heat and aging resistant material. Three switches are provided beneath the capsule itself: for selecting the three directional characteristics, frequency response and sensitivity. Its high frequency response is practically linear even in its cardioid and figure-8 positions.



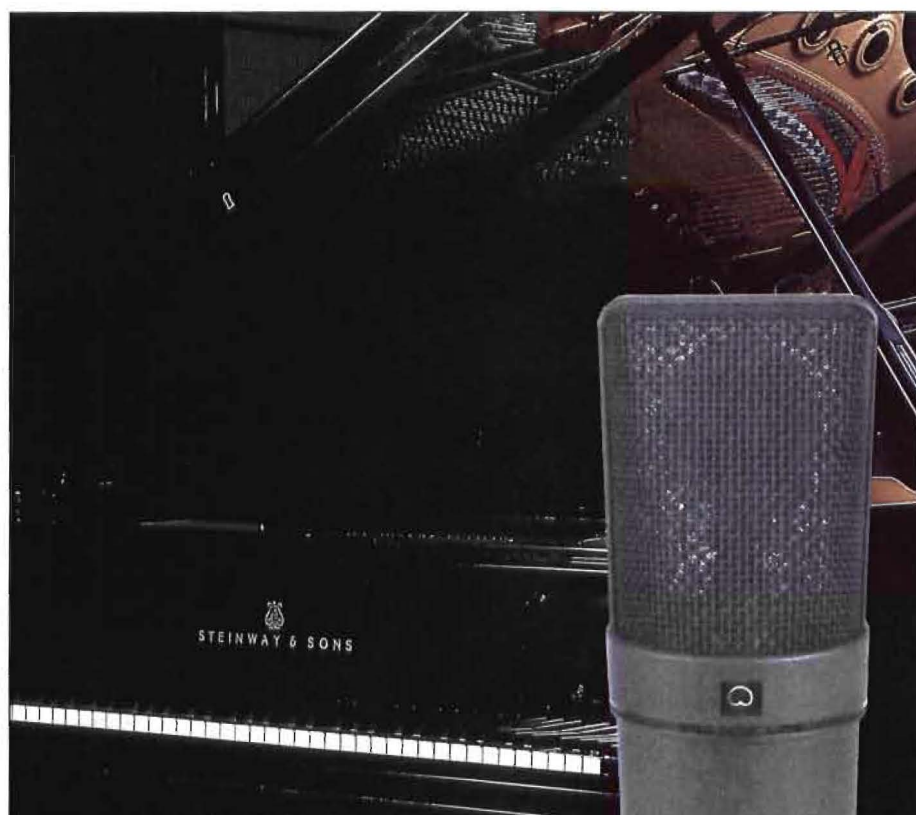
Type		U 87 Ai
Directional pattern		○○8
Acoustic operating principle		pressure gradient transducer
Frequency range	Hz	40-16 000
Sensitivity ¹⁾	mV/Pa	20/28/22
Rated impedance	ohms	200
Equivalent loudness level due to inherent noise	DIN 45405 (1983) CCIR 468-1 (1976) dB	26/23/25
	DIN/IEC 651 (1981) dB-A	15/12/14
S/N ratio re 1 Pa at 1 kHz	CCIR dB	68/71/69
	A-weighted	79/82/80
Max. SPL for less than 0.5% THD ²⁾	without dB	117
	with preattenuation	127
Total dynamic range of the microphone amplifier ³⁾		dB 115
Power consumption ⁴⁾		mA 0.8
Weight		g 500
Dimensions	diameter	mm 56
	length	mm 200

1) .. 4) see page 8



Designation	Type	Surface	Cat. No.	Cat. Page
Condenser microphone	U 87 A i	satın nickel	11215 003	14
Condenser microphone	U 87 A i mt	matt black	11215 004	14
Mains power supply unit	N 48 i-2	matt black	11299 002	34
Battery supply unit	BS 48 i	matt black	11298 002	34
Cable with swivel mount	IC 4	satın nickel	11311 007	38
Cable with swivel mount	IC 4 mt	matt black	11311 016	38
Extension cable	IC 3	satın nickel	11311 003	38
Extension cable	IC 3 mt	matt black	11311 004	38
Swivel mount	SG 367	satın nickel	10346 001	44
Swivel mount	SG 367 mt	matt black	10346 002	44
Elastic suspension	Z 48	satın nickel	10423 001	46
Elastic suspension	Z 48 mt	matt black	10423 002	46
Auditorium hanger	MNV 87	satın nickel	11435 003	45
Auditorium hanger	MNV 87 mt	matt black	11435 004	45
Floor stand	M 31	satın nickel	12407 001	41
Table stand	MF 4	matt black	12447	40
Windscreen	WS 87	black	11407 001	46

Condenser Studio Microphones



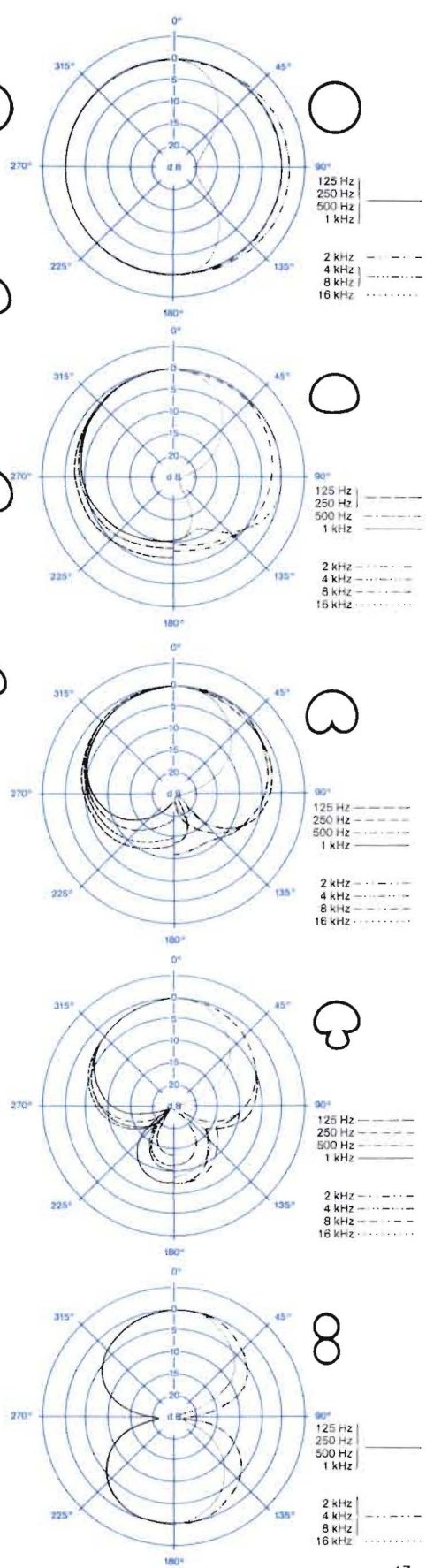
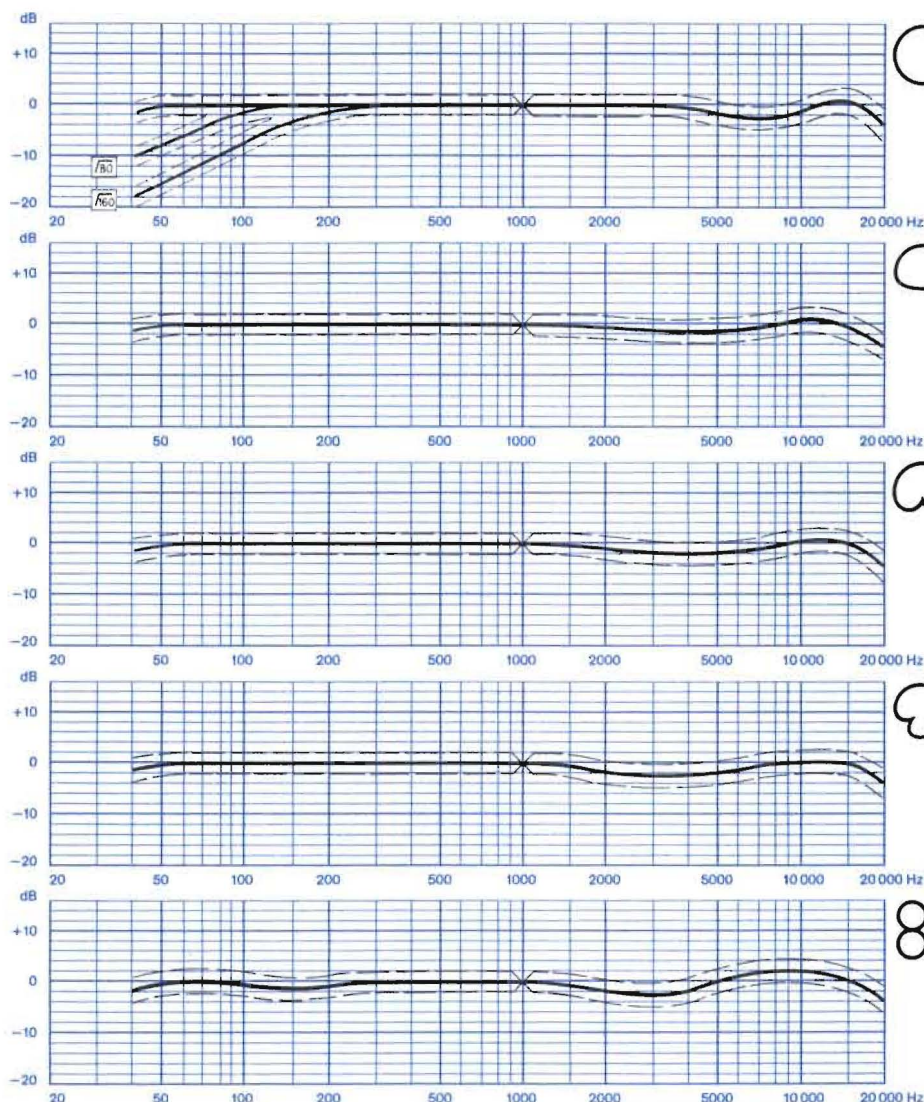
U 89 i

The 89 i microphone, similar in shape but smaller than the U 87 Ai, is a studio microphone with switchable directional patterns. Its grille houses a dual-membrane capsule with a particularly linear frequency response for all polar patterns. A rotary switch beneath the grille permits selection of one of 5 directional patterns: besides the three usual ones – omni, cardioid, figure-8 – the intermediate positions “wide-angle cardioid” and “hypercardioid” are also available. This makes the U 89 i highly adaptable to both large instruments and wide sound sources and makes it suitable for distant pick-ups as well. The amplifier allows sound pressure levels of up to 134 dB to be reproduced without distortion. When the negative feedback in the first amplifier stage is switched by means of the “–6 dB” rotary switch, the boundary SPL is raised to 140 dB, more than the peak sound pressure level to be found right in front of a trumpet. A high-pass filter inserted ahead of the output transformer provides a roll-off in sensitivity at either 80 Hz or 160 Hz.



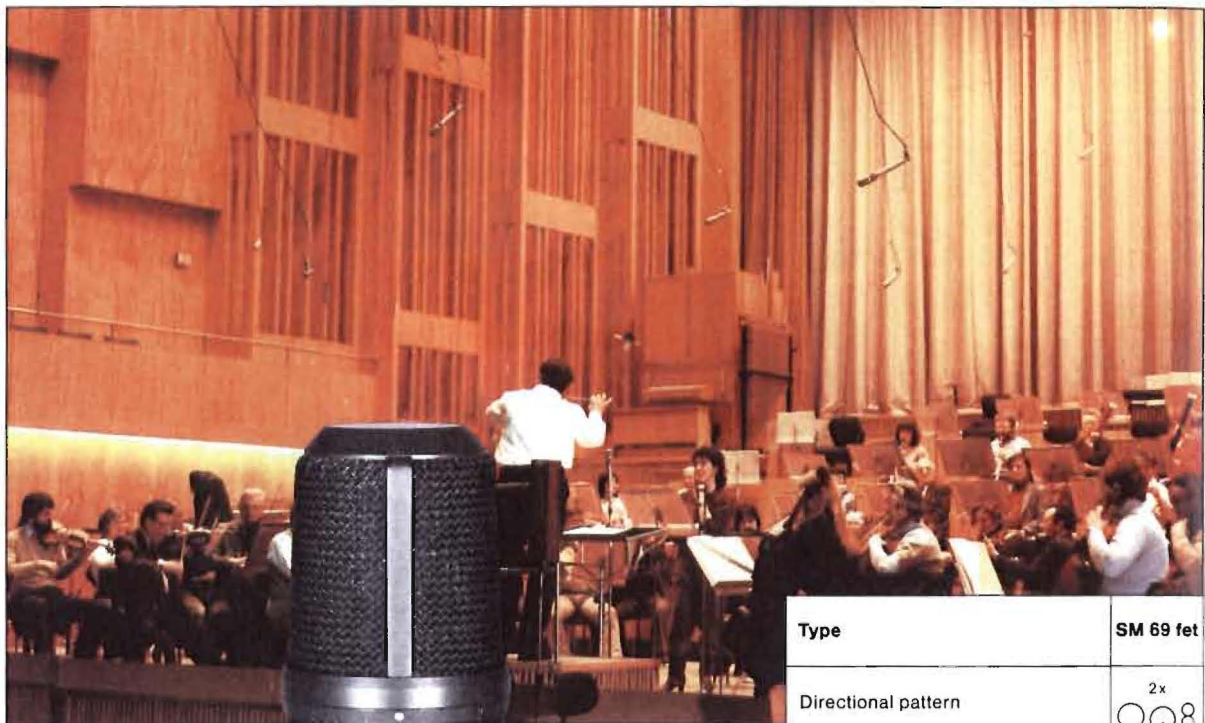
Type	U 89 i	
Directional pattern		
Acoustic operating principle	pressure gradient transducer	
Frequency range	Hz	40–20 000
Sensitivity ¹⁾	mV/Pa	8
Rated impedance	ohms	150
Equivalent loudness level due to inherent noise	DIN 45405 (1983) CCIR 468-1 (1976) dB	28
	DIN/IEC 651 (1981) dB-A	17
S/N ratio re 1 Pa at 1 kHz	CCIR	66
	A-weighted	77
Max. SPL for less than 0.5% THD ²⁾	without preattenuation	134
	with	140
Total dynamic range of the microphone amplifier ³⁾	dB	123
Power consumption ⁴⁾	mA	0.8
Weight	g	400
	mm	
Dimensions	diameter	46
	length	185

1) ... 4) see page 8



Designation	Type	Surface	Cat. No.	Cat. Page
Condenser microphone	U 89 i	satın nickel	11247 003	16
Condenser microphone	U 89 i mt	matt black	11247 004	16
Mains power supply unit	N 48 i-2	matt black	11299 002	34
Battery supply unit	BS 48 i	matt black	11298 002	34
Cable with swivel mount	IC 4	satın nickel	11311 007	38
Cable with swivel mount	IC 4 mt	matt black	11311 016	38
Extension cable	IC 3	satın nickel	11311 003	38
Extension cable	IC 3 mt	matt black	11311 004	38
Swivel mount	SG 389	satın nickel	11329 001	44
Swivel mount	SG 389 mt	matt black	11329 002	44
Elastic suspension	EA 89 i	satın nickel	12402 003	46
Elastic suspension	EA 89 i mt	matt black	12402 004	46
Auditorium hanger	MNV 87	satın nickel	11435 003	45
Auditorium hanger	MNV 87 mt	matt black	11435 004	45
Floor stand	M 31	satın nickel	12407 001	41
Table stand	MF 4	matt black	12447	40
Windscreen	WS 89	black	12403 001	46

Stereo Condenser Microphones

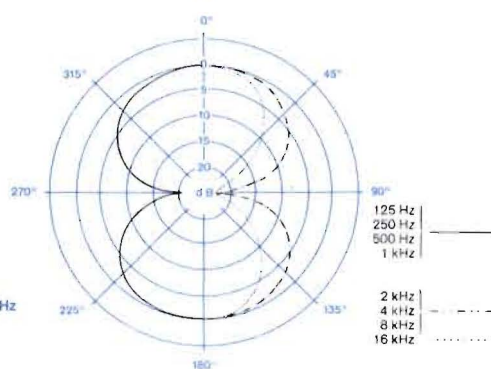
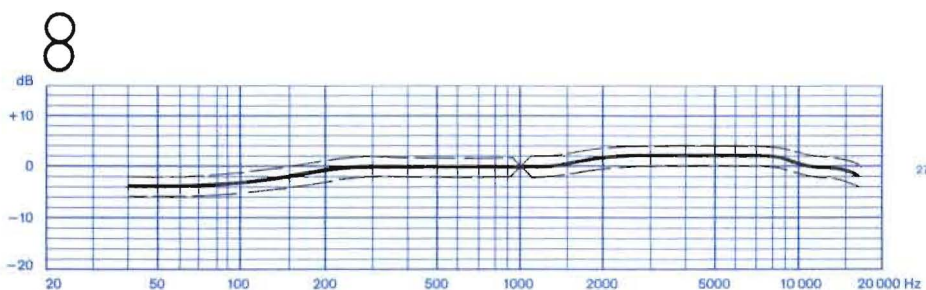
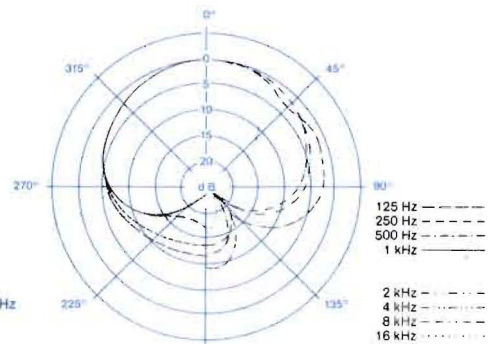
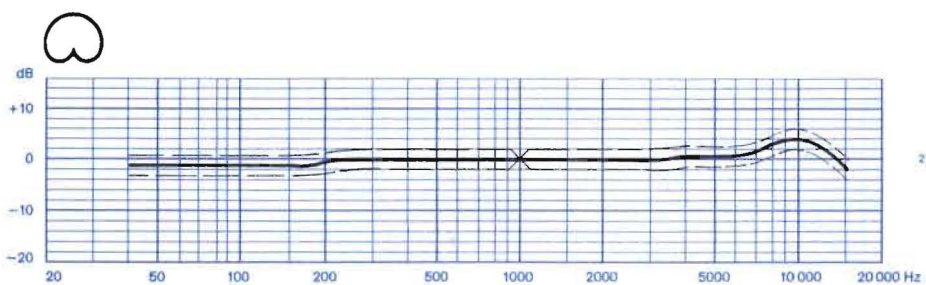
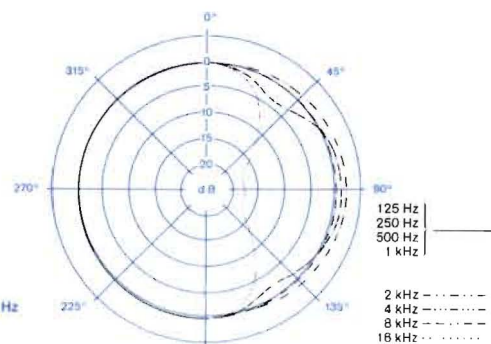
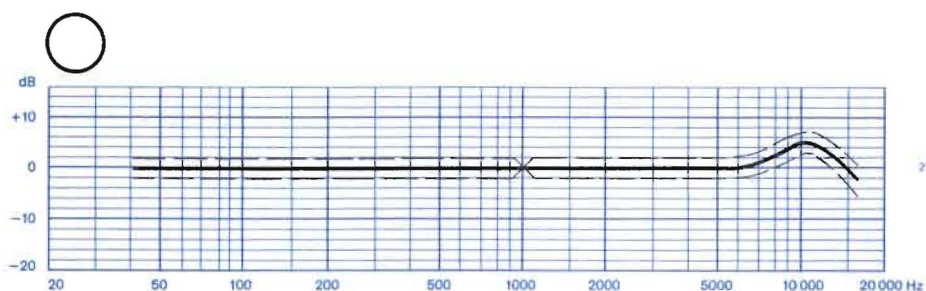


SM 69 fet

The SM 69 fet stereo condenser microphone consists of two completely separate and independent microphone capsule systems mounted one above the other. The upper element may be rotated up to 270° with respect to the lower. This enables the user to apply the various intensity stereo recording techniques – such as MS or XY – without the danger of arrival time (phase) differences between the systems. Both microphone systems are remote controllable. They may be switched independently of each other in 9 steps to cardioid, figure 8 and omni patterns and six characteristics in between. The microphone may also be used as two mono units; for example, when two microphones with differing directional patterns are needed in the same place. Axis of maximum sensitivity is at right angles to the microphone body.

Type	SM 69 fet	
Directional pattern	2x	
Acoustic operating principle	pressure gradient transducer	
Frequency range	Hz	40–16 000
Sensitivity ¹⁾	mV/Pa	19
Rated impedance	ohms	200
Equivalent loudness level due to inherent noise	DIN 45405 (1983) CCIR 468-1 (1976)	24
	DIN/IEC 651 (1981) dB-A	13
S/N ratio re 1 Pa at 1 kHz	CCIR	70
	A-weighted	81
Max. SPL for less than 0.5% THD ²⁾	dB	123
Total dynamic range of the microphone amplifier ³⁾	dB	110
Power consumption ⁴⁾	mA	0.8
Weight	g	465
Dimensions	diameter length	mm 30/48 260

1) ... 4) see page 8



Designation	Type	Surface	Cat. No.	Cat. Page
Condenser stereo microphone	SM 69 fet	satın nickel	11236 001	18
Condenser stereo microphone	SM 69 fet mt	matt black	11236 002	18
Mains power supply unit	NS 69 i	grey	11279 002	35
Battery supply unit	BS 48 i-2	matt black	11298 004	34
Phantom powering adapter	CU 48 i	grey	11437 002	35
Cable with swivel mount	SC 6	satın nickel	11301 001	38
Cable with swivel mount	SC 6 mt	matt black	11301 002	38
Extension cable	SC 1	satın nickel	11301 003	38
Extension cable	SC 1 mt	matt black	11301 004	38
Elastic suspension	EA 30 A	satın nickel	10449 003	46
Elastic suspension	EA 30 A mt	matt black	10449 004	46
Auditorium hanger	MNV 87	satın nickel	11435 003	45
Auditorium hanger	MNV 87 mt	matt black	11435 004	45
Floor stand	M 31	satın nickel	12407 001	41
Table stand	MF 4	matt black	12447	40
Windscreen	WS 69	black	11404 001	46





Stereo Condenser Microphones



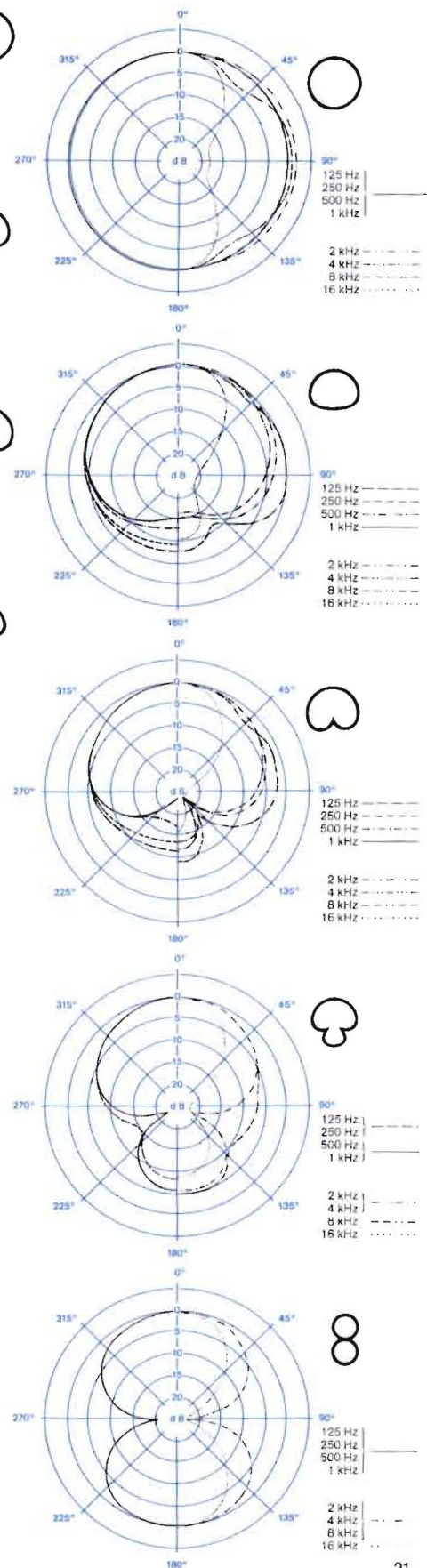
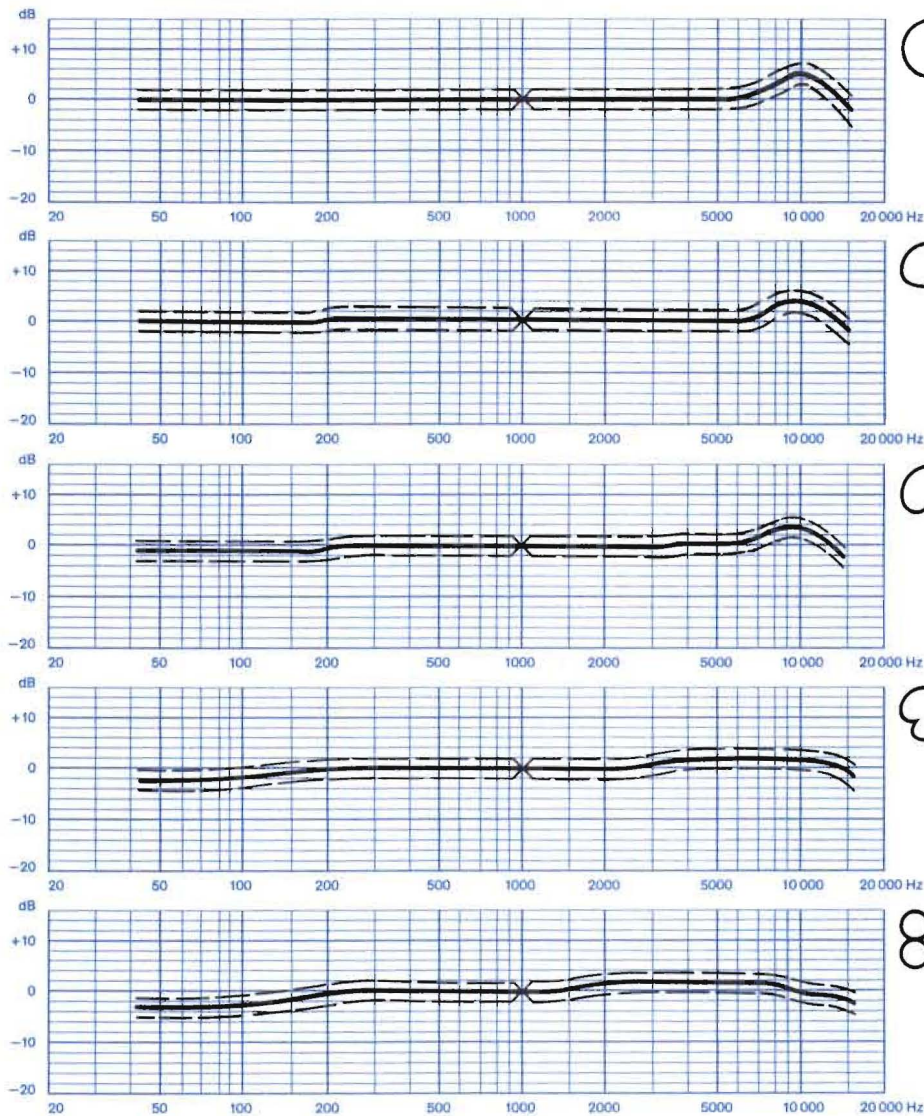
USM 69 i

The USM 69 i is a stereo microphone featuring built-in directional pattern selectors. Its acoustical characteristics are identical to those of the SM 69 fet stereo condenser microphone since the entire capsule configuration has been adopted from it in unchanged form. With the SM 69 fet the directional patterns are selected by remote control, whereas with the USM 69 i the directional patterns of the two systems are selected independently by using two rotary switches which are flushmounted in the microphone body. As a consequence, the USM 69 i may be operated using two standard 3-pole phantompowered microphone inputs. A built-in dc to dc converter generates the capsule bias required so that any of the polar patterns – omni, wide-angle cardioid, cardioid, hypercardioid and figure-8 – can be selected separately for either system. The two built-in impedance converting special-amplifiers give the USM 69 i 10 dB more head room than the SM 69 fet, thus providing the USM 69 i with a dynamic range of 119 dB. It can therefore pick up extremely loud sound sources at close proximity without difficulty.



Type		USM 69 i
Directional pattern		2x    
Acoustic operating principle		pressure gradient transducer
Frequency range	Hz	40–16 000
Sensitivity ¹⁾	mV/Pa	13
Rated impedance	ohms	150
Equivalent loudness level due to inherent noise	DIN 45405 (1983) CCIR 468-1 (1976) dB	24
	DIN/IEC 651 (1981) dB-A	13
S/N ratio re 1 Pa at 1 kHz	CCIR dB	70
	A-weighted	81
Max. SPL for less than 0.5% THD ²⁾	dB	132
Total dynamic range of the microphone amplifier ³⁾	dB	119
Power consumption ⁴⁾	mA	2 x 0.7
Weight	g	510
Dimensions	diameter	mm
	length	30/48 292.5

1) ... 4) see page 8



Designation	Type	Surface	Cat. No.	Cat. Page
Condenser stereo microphone	USM 69 i	satın nickel	12207 003	20
Condenser stereo microphone	USM 69 i mt	matt black	12207 004	20
Mains power supply unit	N 48 i-2	matt black	11299 002	34
Battery supply unit	BS 48 i-2	matt black	11298 004	34
Cable with swivel mount	IC 6	satın nickel	11330 001	38
Cable with swivel mount	IC 6 mt	matt black	11330 002	38
Extension cable	IC 5	satın nickel	11330 003	38
Extension cable	IC 5 mt	matt black	11330 004	38
Adapter cable	AC 20	yellow/red	11321 010	38
Elastic suspension	EA 30 A	satın nickel	10449 003	46
Elastic suspension	EA 30 A mt	matt black	10449 004	46
Auditorium hanger	MNV 87	satın nickel	11435 003	45
Auditorium hanger	MNV 87 mt	matt black	11435 004	45
Floor stand	M 31	satın nickel	12407 001	41
Table stand	MF 4	matt black	12447	40
Windscreen	WS 69	black	11404 001	46

Stereo Condenser Microphones



KU 81 i

The dummy head is a replica of the human head, into which microphones have been positioned where the "ears" are normally located. Listening to the dummy head signal using high-quality headphones gives an impression very similar to that which the listener would have if he were located at the same place at which the dummy head is set up. The result is an illusion of the very presence at the place of the performance. When monitored through loudspeakers the sound impression is almost identical to the one produced by a conventional stereo microphone at the dummy head position. A more detailed reproduction of the room's depth is obtained in addition. This loudspeaker monitoring compatibility is one of the most important differences between the KU 81 i dummy head and its predecessor, the KU 80 i.

The KU 81 i dummy head is equally good for the production of impressive broadcast plays and music with simultaneous recording of the acoustic ambience. The dummy head is also successfully used for the examination of the influence of noise on various work locations under precisely simulated conditions.

The KU 81 i comes with a two-channel mains unit, connecting cables and a robust aluminium carrying case.

The KU 81 i as a "co-pilot" in a DORNIER 228

Type		KU 81 i
Directional pattern		
Acoustic operating principle		pressure transducer
Frequency range	Hz	40–16 000
Sensitivity ¹⁾	mV/Pa	10
Rated impedance		ohms 150
Equivalent loudness level due to inherent noise	DIN 45405 (1983)	29
	CCIR 468-1 (1976)	
S/N ratio re 1 Pa at 1 kHz	dB	
	DIN/IEC 651 (1981)	16
S/N ratio re 1 Pa at 1 kHz	CCIR	65
	A-weighted	78
Max. SPL for less than 0.5% THD ²⁾	dB	130
Total dynamic range of the microphone amplifier ³⁾	dB	114
Power consumption ⁴⁾	mA	2 x 0.7
Weight	g	2700
Dimensions	diameter	180
	length	280

1) ... 4) see page 8

RSM 191-System

The RSM 191 MS-stereo microphone is the heart of a stereo shotgun system with variable directional characteristics, combined with high directional efficiency.

Two completely separate capsule assemblies – a short shotgun and a system, with its axis at a right angle and operating in a figure-8 characteristic – provide the middle and the side information.

The TLM transformerless circuitry provides low impedance output signals which are insensitive to the length of any connected cable. The separate MTX 191 matrix amplifier enables gain adjustments of the side signal system relative to the middle system in six 3 dB steps. This changes the width of the stereo image.

Thus the RSM 191 is the ideal microphone for stereophonic news gathering (ENG) outdoors in environments with high ambient noise levels as well as stereophonic motion picture and TV sound, concentrating or spreading the stereo image according to changes in the set.

The outputs of the “two microphones” are available either as mid-side (MS) information, or can be put through the transformerless plus and minus matrix to produce left-right (XY) stereo channels.

The matrix amplifier has a built-in high-pass filter with a cutoff frequency of 40 Hz. This feature allows attenuation of frequencies below the usable frequency range. In order to prevent overload of follow-on amplifier with very high sound pressures, the matrix amplifier MTX 191 is supplied with an internal 10 dB preattenuation switch. Power is supplied to the MTX 191 and RSM 191 either by a 48 V phantom powering circuit or by a 9 V battery which can be inserted in the MTX 191 (8 hours operating time with alkaline batteries). Included is a locking cable (KT 5) to interconnect the microphone with the matrix amplifier and a Y-shaped adapter cable (AC 20), which feeds the output signals of the matrix amplifier (5-pin) to two typical 3-pin A3M connectors with signal I and II and a WS 191.



The RSM 191 System comes in an aluminium carrying case large enough to hold the microphone mounted inside the WK 81 windshield, plus additional accessories.

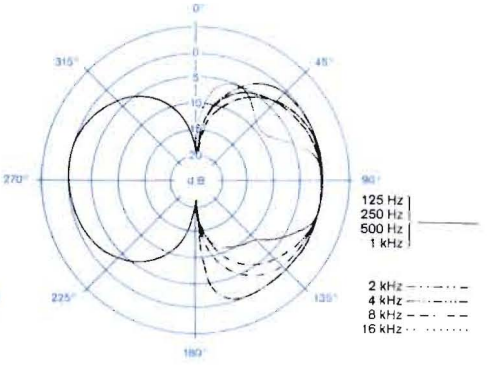
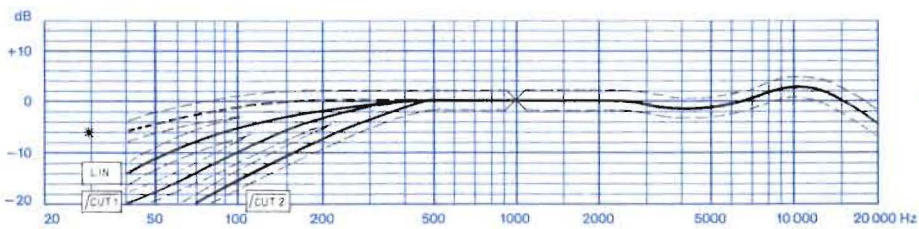
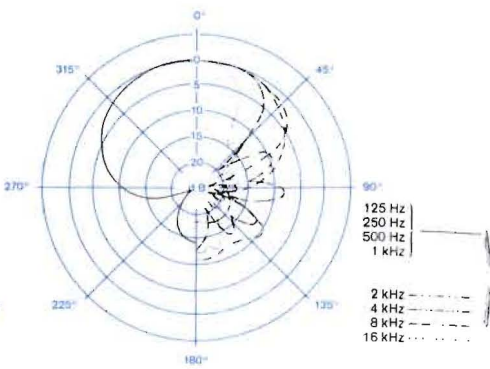
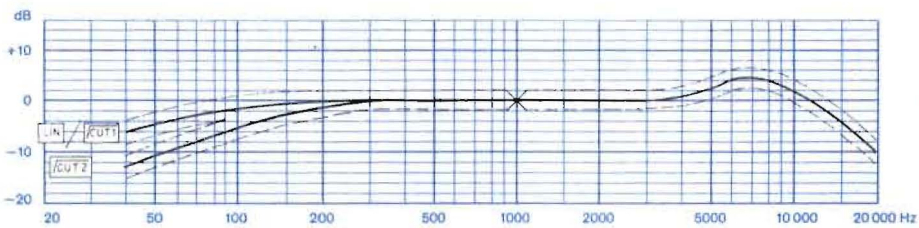
Type		RSM 191
Directional pattern		
Acoustic operating principle		pressure gradient transducer
Frequency range	Hz	40–20 000
Sensitivity ¹⁾	mV/Pa	23
Rated impedance	ohms	50
Equivalent loudness level due to inherent noise	DIN 45405 (1983) CCIR 468-1 (1976) dB DIN/IEC 651 (1981) dB-A	M 25 S 31 M 16 S 22

S/N ratio re 1 Pa at 1 kHz	CCIR A-weighted dB	M 69/S 63 M 78/S 72
Max. SPL for less than 0.5% THD ²⁾	without preattenuation with dB	134 144
Total dynamic range of the microphone amplifier ³⁾	dB	M 118 S 112
Power consumption ⁴⁾	mA	2 x 1.9
Weight	g	170
Dimensions	diameter mm length mm	30 212

1) ... 4) see page 8

Stereo Condenser Microphones

M/S Operation

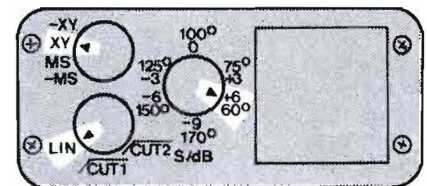
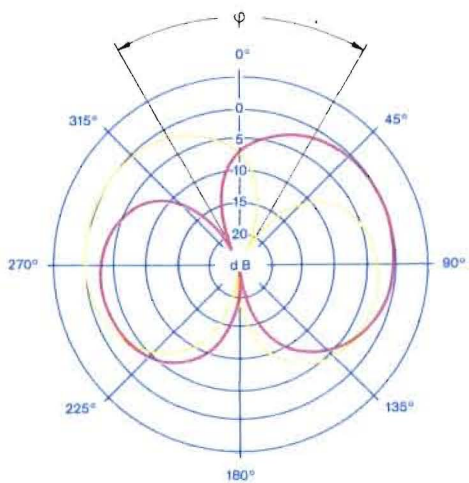
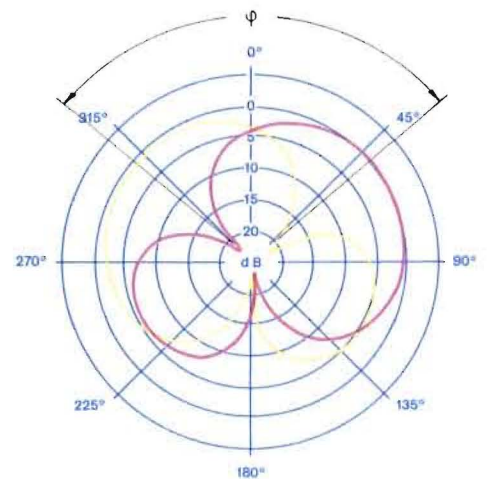
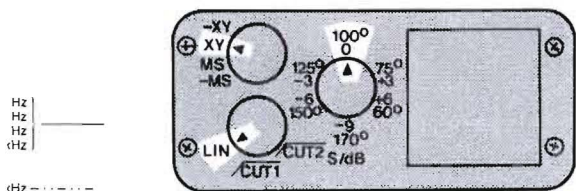
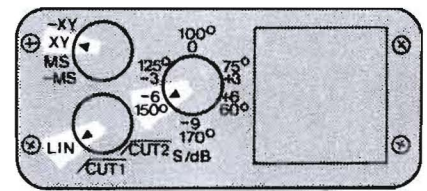
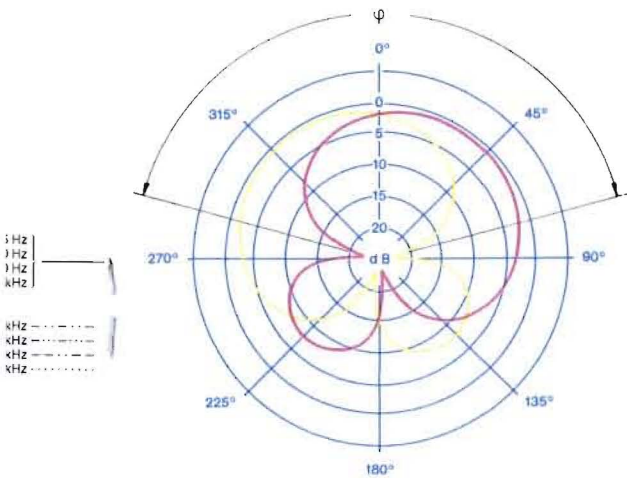


* Bridge in microphone



Designation	Type	Surface	Cat. No.	Cat. Page
Zoom stereo microphone system	RSM 191	matt black	12223	23
Matrix amplifier	MTX 191	matt black	12445	23
Mains power supply unit	N 48 i-2	matt black	11299 002	34
Locking cable, 5 m	KT 5	matt black	11343 001	38
Cable with swivel mount, 10 m	KT 6	matt black	11343 002	38
Extension cable, 10 m	IC 7	satin nickel	11344 001	38
Adapter cable	AC 20	matt black	11321 010	38
Elastic suspension	EA 30 B mt	matt black	10449 006	46
Auditorium hanger	MNV 87	satin nickel	11435 003	45
Auditorium hanger	MNV 87 mt	matt black	11435 004	45
Floor stand	M 31	satin nickel	12407 001	41
Table stand	MF 4	matt black	12447	40
Table stand	MF 3	matt black	12442 001	40
Microphone fishpole	MA	matt black	11419	45
Windscreen	WS 191	matt black	12433 001	46
Polyester windscreen	WK 81	grey	12420 001	46
Windjammer	WJ 81	grey	12426 001	46

X/Y Operation



MTX 191

Condenser Shotgun Microphones



KMR 81 i

A condenser shotgun microphone is particularly recommended for use under recording conditions where microphones cannot be positioned within the desired distance of the sound source or, with video recording, when the microphone should not appear on the picture. The KMR 81 i is a condenser shotgun microphone featuring excellent directional characteristics for its relatively compact dimensions and low weight. The KMR 81 i combines a high degree of sound rejection at its sides (similar to the hypercardioid: approx. 10 dB), with the high degree of front-to-back rejection of the super-cardioid, likewise 10 dB. This principle also makes the microphone largely insensitive to wind and popping noises.

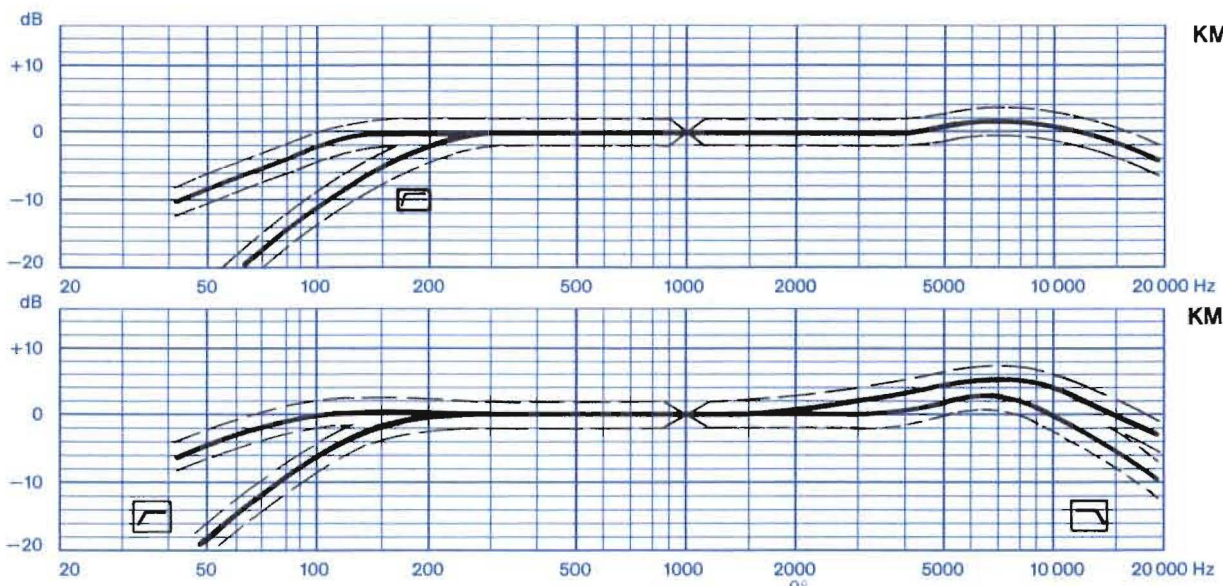
KMR 82 i

The NEUMANN KMR 82 i condenser shotgun microphone is characterized by its largely frequency-independent rejection of sound inciding at an angle to the microphone's axis, by its low self-noise and its good transient behaviour. Its small dimensions and lightweight construction with a favourably placed centre of gravity are made for ease of handling. The directional characteristic of the microphone is lobe-shaped.



Type		KMR 81 i
Directional pattern		
Acoustic operating principle		pressure gradient transducer
Frequency range	Hz	40–20 000
Sensitivity ¹⁾	mV/Pa	18
Rated impedance	ohms	150
Equivalent loudness level due to inherent noise	DIN 45405 (1983) CCIR 468-1 (1976) dB	23
	DIN/IEC 651 (1981) dB-A	12
S/N ratio re 1 Pa at 1 kHz	CCIR dB	71
	A-weighted	82
Max. SPL for less than 0.5% THD ²⁾	without dB	128
	with preattenuation	138
Total dynamic range of the microphone amplifier ³⁾		126
Power consumption ⁴⁾		0.8
Weight		145
Dimensions	diameter	21
	length	226

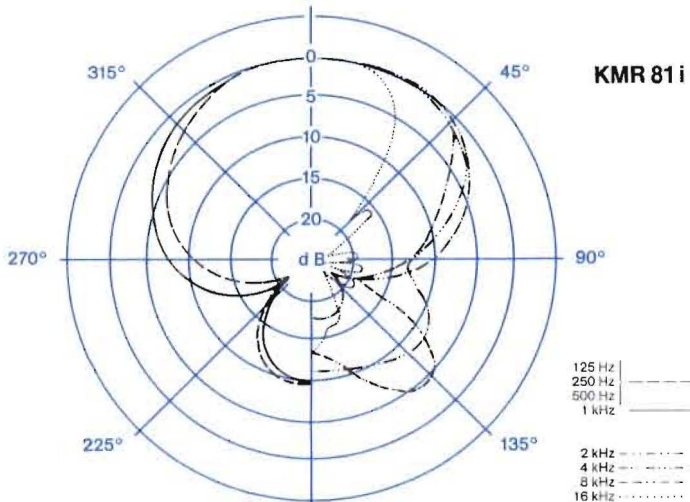
1) ... 4) see page 8



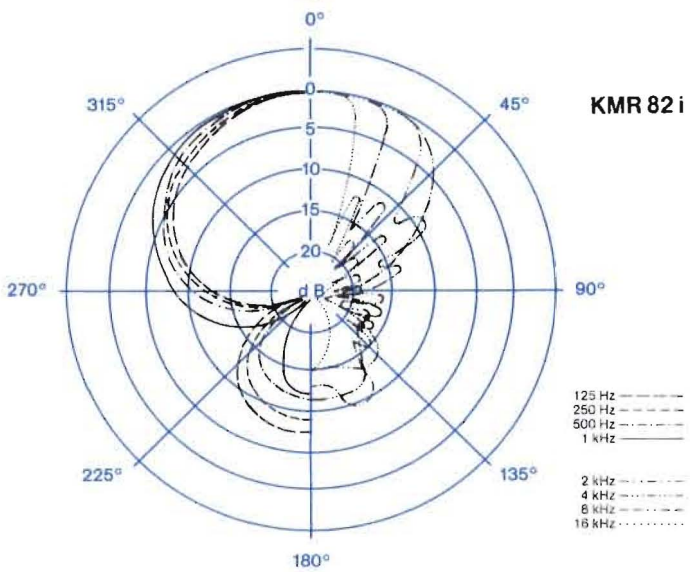
KMR 81 i

KMR 82 i

Type	KMR 82 i	
Directional pattern		
Acoustic operating principle	pressure gradient transducer	
Frequency range	Hz	40–20 000
Sensitivity ¹⁾	mV/Pa	21
Rated impedance	ohms	150
Equivalent loudness level due to inherent noise	DIN 45405 (1983) CCIR 468-1 (1976) dB	23
	DIN/IEC 651 (1981) dB-A	12
S/N ratio re 1 Pa at 1 kHz	CCIR dB	71
	A-weighted	82
Max. SPL for less than 0.5% THD ²⁾	dB	128
Total dynamic range of the microphone amplifier ³⁾	dB	116
Power consumption ⁴⁾	mA	0.7
Weight	g	250
Dimensions	diameter mm	21
	length mm	395



KMR 81 i



KMR 82 i

1) ... 4) see page 8

Condenser Shotgun Microphones

Accessories for KMR Condenser Shot Gun Microphones

Designation	Type	Surface	Cat. No.	Cat. Page
Condenser shotgun microphone	KMR 81 i	satin nickel	12206 003	26
Condenser shotgun microphone	KMR 81 i mt	matt black	12206 004	26
Mains power supply unit	N 48 i-2	matt black	11299 002	34
Battery unit	BS 48 i	matt black	11298 002	34
Active handle	AG 82 i	matt black	11448 002	29
Extension cable	IC 3	satin nickel	11311 003	38
Extension cable	IC 3 mt	matt black	11311 004	38
Swivel mount	SG 21/17	satin nickel	10349 003	44
Swivel mount	SG 21/17 mt	matt black	10349 004	44
Swivel mount	SG 82	matt black	11327 001	29
Quick-release tilting clamp	MKV	matt black	12404 001	44
Mounting bracket	H 82	matt black	12401 001	29
Handle	HG 82	bright	11450 001	29
Elastic suspension	EA 21	satin nickel	10448 001	46
Elastic suspension	EA 21 mt	matt black	10448 002	46
Elastic suspension	EA 82	satin nickel	11447 001	46
Elastic suspension	EA 82 mt	matt black	11447 002	46
Auditorium hanger	MNV 21	grey	11435 001	44
Auditorium hanger	MNV 21 mt	matt black	11435 002	44
Floor stand	M 31	satin nickel	12407 001	41
Table stand	MF 2	matt black	12414 001	40
Windscreen	WS 81	black	12415 001	46
Polyester windscreen	WK 81	grey	12420 001	46
Windjammer	WJ 81	grey	12426 001	46
Miniscreen	MSK 81	black	12448	46
Miniscreen cover	MSCK 81	black	12450	46

Designation	Type	Surface	Cat. No.	Cat. Page
Condenser shotgun microphone	KMR 82 i	satin nickel	12201 014	26
Condenser shotgun microphone	KMR 82 i mt	matt black	12201 015	26
Mains power supply unit	N 48 i-2	matt black	11299 002	34
Battery unit	BS 48 i	matt black	11298 002	34
Active handle	AG 82 i	matt black	11448 002	29
Extension cable	IC 3	satin nickel	11311 003	38
Extension cable	IC 3 mt	matt black	11311 004	38
Swivel mount	SG 82	matt black	11327 001	29
Mounting bracket	H 82	matt black	12401 001	29
Handle	HG 82	bright	11450 001	29
Elastic suspension	EA 82	satin nickel	11447 001	46
Elastic suspension	EA 82 mt	matt black	11447 002	46
Auditorium hanger	MNV 21	grey	11435 001	44
Auditorium hanger	MNV 21 mt	matt black	11435 002	44
Floor stand	M 31	satin nickel	12407 001	41
Table stand	MF 3	matt black	12442 001	40
Windscreen	WS 82	black	12412 001	46
Polyester windscreen	WK 82	grey	11449 002	46
Windjammer	WJ 82	grey	12427 001	46
Miniscreen	MSK 82	black	12449	46
Miniscreen cover	SSC 81	black	13401	46

Several special accessories have been developed for the KMR 82 i condenser shotgun microphone to ensure optimum adaptability to location sound recording, fishpole, floor stand or boom applications.

The H 82 mounting bracket (1) holds the microphone firmly in place. It attaches to the SG 82 swivel mount (2), the HG 82 handle (3), or the AG 82 i active handle (4; see overleaf for detailed information on active handle).

The EA 82 elastic suspension (5) is used to prevent the microphone from being exposed to mechanical vibrations. It attaches to the swivel mount, the handle, or the active handle the same way the H 82 mounting bracket does.

For outdoor applications we recommend use of additional protection from wind noise. The WS 82 polyurethane windscreen (6) not only guards against disturbances caused by wind; it also serves as a soft padding when the microphone is transported in its leather carrying case (7) (the WS 82 and the leather carrying case are standard accessories of the microphone).

If protection from higher wind speeds is required, use of the larger gauze-covered WK 82 polyester windscreen which encloses the entire microphone is preferable.

The EA 82 elastic suspension, the AG 82 i active handle and SG 82 swivel mount have a $\frac{5}{8}$ "-27 thread for mounting on microphone stands. Using a thread reducer, mounting on $\frac{1}{2}$ " or $\frac{3}{8}$ " thread studs is also possible. The HG 82 handle has a $\frac{3}{8}$ " female thread.

The accessories for KMR 82 i can also be used for KMR 81 i.

6 WS 82



7



8 WK 82



1 H 82



2 SG 82



3 HG 82



4 AG 82 i



5 EA 82



The AG 82 i active handle has been designed primarily to make the KMR 82 i condenser shotgun microphone independent from an external power supply. It is powered by a standard 9 Volt battery (IEC 6 F 22) whose potential is stepped up to 48 Volts by means of a dc converter. After unscrewing the jacket, the battery is easily installed in the lower part of the handle. A fully charged battery permits at least 10 hours of continuous operation. The cable leading from the top of the swivel mount is used to power the microphone (48 Volt phantom powering, ≤ 1.5 mA); the connection at the bottom end is the floating, balanced, and dc-free output for transmission of the modulation to any type of input. Decreasing battery voltage is indicated by a flashing light emitting diode.

Specifications:

Power supply	One 9 Volt dry cell (IEC 6 F 22)
Available phantom powering	48 V at ≤ 1.5 mA
Microphone input	Balanced, wired to DIN 45 596 for phantom powering
Microphone output	Balanced, floating, dc free
Dimensions	\varnothing 35 mm, approx. 195 mm long
Weight	480 g (with battery)

Condenser Soloist Microphone

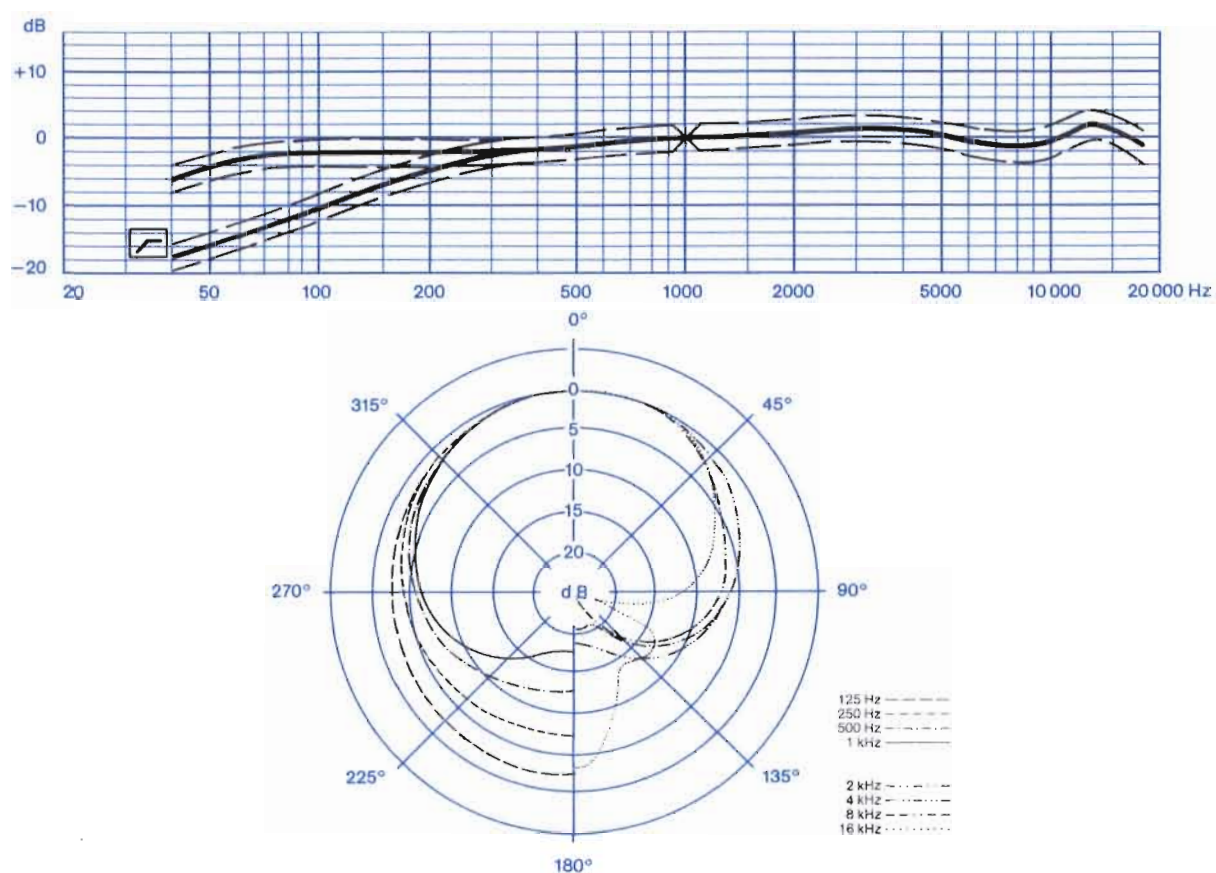


KMS 84 i

This is a cardioid fet 80 microphone especially designed to solve the difficult problems encountered in the pick-up of high level rock music. A multistage mechanical filter in front of the condenser capsule provides unprecedented protection against popping and other explosive sounds. This, together with the elastic suspension of the capsule, provides suppression of noise so commonly found in hand held applications with rock soloists. The low frequency sensitivity can be rolled off somewhat to compensate for proximity effect (bass rise) by means of a switch.

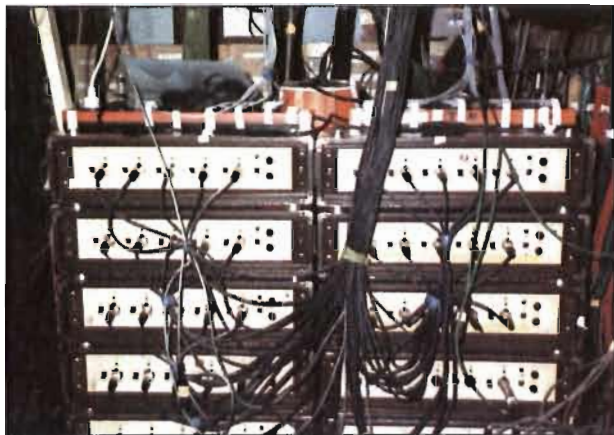
Type		KMS 84 i
Directional pattern		
Acoustic operating principle		pressure gradient transducer
Frequency range	Hz	40-20 000
Sensitivity ¹⁾	mV/Pa	5
Rated impedance	ohms	150
Equivalent loudness level due to inherent noise	DIN 45405 (1983) CCIR 468-1 (1976) dB	29
	DIN/IEC 651 (1981) dB-A	18
S/N ratio re 1 Pa at 1 kHz	CCIR dB	65
	A-weighted	76
Max. SPL for less than 0.5% THD ²⁾	without with dB	138 148
	preattenuation	
Total dynamic range of the microphone amplifier ³⁾		dB 130
Power consumption ⁴⁾		mA 0.5
Weight		g 210
Dimensions	diameter	mm 21/40
	length	mm 177

1) ... 4) see page 8



Designation	Type	Surface	Cat. No.	Cat. Page
Condenser soloist microphone	KMS 84 i	satın nickel	12205 044	30
Condenser soloist microphone	KMS 84 i mt	matt black	12205 045	30
Mains power supply unit	N 48 i-2	matt black	11299 002	34
Battery unit	BS 48 i	matt black	11298 002	34
Extension cable	IC 3	satın nickel	11311 003	38
Extension cable	IC 3 mt	matt black	11311 004	38
Swivel mount	SG 21/17	grey	10349 003	44
Swivel mount	SG 21/17 mt	matt black	10349 004	44
Quick-release tilting clamp	MKV	matt black	12404 001	44
Elastic suspension	EA 21	satın nickel	10448 001	46
Elastic suspension	EA 21 mt	matt black	10448 002	46
Floor stand	M 31	satın nickel	12407 001	41
Table stand	MF 3	matt black	12442 001	40
Protecting grille		satın nickel	83472 00552	30
		matt black	83472 00611	30
		red	83472 00571	30
		yellow	83472 00581	30
		green	83472 00591	30
		blue	83472 00601	30

Electrical Accessories



Available Versions:

- V 442 portable, rugged instrument case; outputs at D3M Switchcraft connectors. Cat. No. 33711 012
- V 442 A 19"-version for rack mounting; outputs at 30-pole male multiconnector strips. Inputs additional at a rear 30-pole female multiconnector strip. Cat. No. 33711 013

Special versions on request.

V 442 (A) Isolation Amplifier

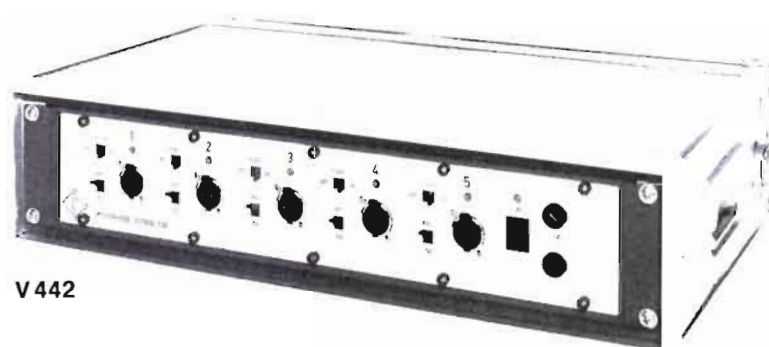
It is an important feature of the microphone isolation amplifier that it provides electrical isolation of the inputs against one another as well as against the outputs, to which the operating ground of a mixing console may be connected.

In normal studio operation, microphone housings are connected to the grounded console via the cable shield. In practice, however, it often happens that due to a defect of some kind, one side of the ac power line may be inadvertently connected to the chassis of an electronic musical instrument. Simultaneous touching of a microphone and the instrument by the musician may lead to a fatal accident.

The microphone isolation amplifier eliminates the risk. It fulfills the corresponding safety regulations.

The 48 V phantom powering required by condenser microphones is generated separately for each input. Each of these inputs may be switched to mike or line level.

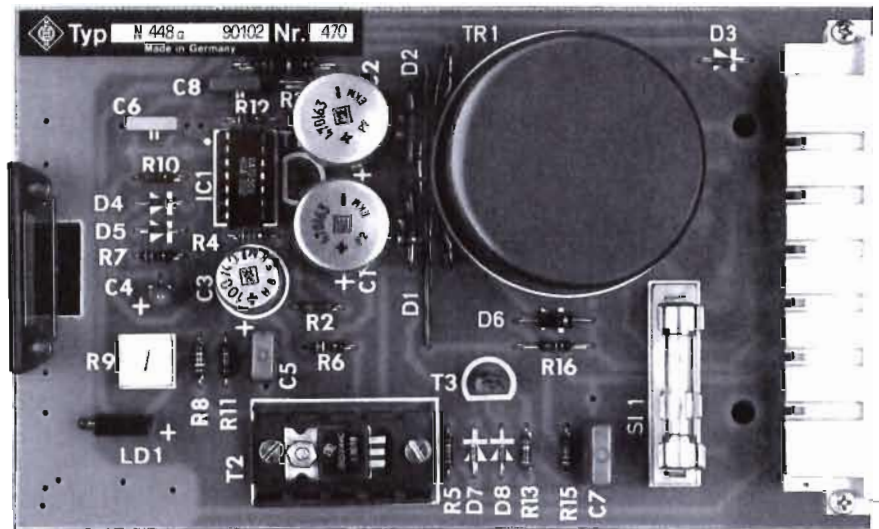
There are four identical outputs associated with each input.



V 442



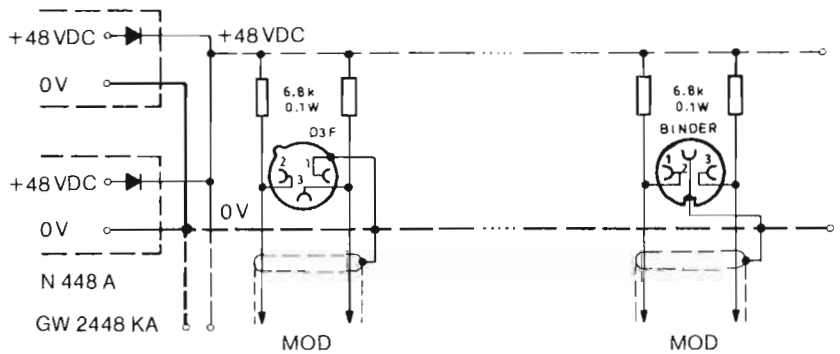
V 442 A



Central powering

The N 448 A and GW 2448 KA central power supply units are capable of powering up to 100 microphones of the fet 80-series (approx. .5 mA per mic.). They are intended primarily for installation in mixing consoles. In that case each microphone circuit is to be equipped with two 6.8 kohms resistors selected to be within 0.4 % of each other. The resistors are to be connected at some convenient point within the mixer (not the power supply unit) according to the circuit diagram pictured below. When using other types of microphone outlets than indicated here, the wiring is analogous. This means that each of the modulation leads is to be connected via one of the two 6.8 kohms resistors to the +48 volt dc potential, while the minus pole is to be connected to the cable shield or chassis. When powering no more than 70 microphones from one supply, two modulation leads, i.e. the audio conductor pair of one microphone, may be shorted to ground without affecting the performance of the rest of the connected microphones.

The outputs of two or more central supply units may be connected in parallel. Should one supply fail, the other units will automatically take over, since each unit's dc voltage is decoupled by a silicon diode and the shorting of one supply unit will not short out the other units on the bus.



Parallel connection of two or more power supplies

Specifications:				
N 448 A Cat. No. 11297001				
Operating voltage	110/220 V $\pm 10\%$ 50/60 Hz	GW 2448 KA Cat. No 11295008	Operating voltage	24 V (21... 28 V)
Power consumption	max. 15 VA		Current consumption	max. 230 mA
dc voltage output (stabilized)	48 V ± 0.5 V		dc voltage output (stabilized)	48 V ± 1 V
Current output with short circuit	max. 100 mA max. 50 mA		Current output with short circuit	max. 50 mA max. 60 mA
Ripple (RMS)	≤ 0.3 mV		Ripple (RMS)	≤ 0.1 mV
Plug-in PC board	100 x 160 x 35 mm		Plug-in PC board	100 x 160 x 35 mm
Weight	approx. 300 g		Weight	approx. 190 g
Mating connector	8871600027		Mating connector	8870731220

Electrical Accessories



N 48 i-2

Phantom 48 VDC Power Supplies

The N 48 i-2 mains power supply unit is suitable for the phantom powering of one or two microphones at 48 V and a maximum current of 6 mA per channel. The microphones are connected to two XLR-3 F box-mounted receptacles.

The output signals are routed dc-free to two XLR-3 M box-mounted receptacles. This enables unsymmetrical inputs to be used without any circuit modifications or the use of a transformer, in addition to the symmetrical arrangements usual in studio operation.

A separate plug-in mains unit and a newly developed converter circuit of the hybrid type – also used with the battery-operated models – result in extremely compact dimensions. The BS 48 i and BS 48 i-2 battery units require only one 9 V battery type IEC 6 F 22 to deliver same output data as the mains power supply unit. The two-channel battery unit is provided with two 5-pin XLR box-mounted receptacles.

Both battery power units are supplied with self-adhesive rubber feet and a self-adhesive belt fastener made of leather.



BS 48 i



N 48 i-2 Technical Data

Cat.No. 11299 002:

Mains voltage	220 V/50 Hz
Power consumption	max. 3 VA

Cat.No. 11299 003:

Mains voltage	110 V/60 Hz
Power consumption	max. 3 VA

Cat.No. 11299 004: (without plug-in mains unit)

Rated input voltage	9 V dc
Permissible input voltage	7...26 V dc
Current drain at rated input voltage	max. 150 mA
Output voltage	48 ±1 V
Current output	max. 2 x 6 mA
Ripple (RMS)	≤ 0.1 mV
Dimensions (w x h x d)	80 x 37 x 102 mm
Weight (incl. plug-in mains unit)	520 g

BS 48 i (-2) Technical Data

BS 48 i Cat.No. 11298 002

BS 48 i-2 Cat.No. 11298 004

Operating voltage	9 V
Output voltage	48 ±1 V
Current output	max. (2 x) 6 mA
Battery	9 V (IEC 6 F 22)
Dimensions (w x h x d)	80 x 37 x 102 mm
Weight BS 48 i	270 g*
BS 48 i-2	310 g*

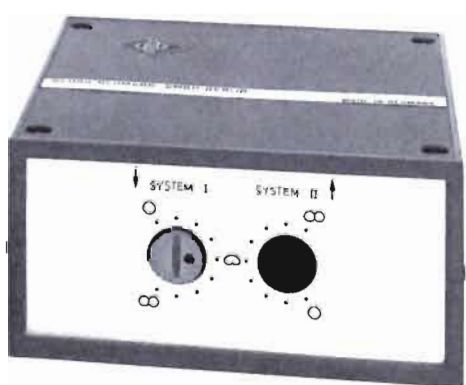
(*without battery)



NS 69 i



CU 48 i



SM 69 fet stereo microphone power supply units

The NS 69 i power supply unit is used to power one stereo microphone from an ac mains outlet. If a central 48 volt supply is available, a stereo microphone may also be powered from two phantom powered 48 volt outlets via the CU 48 i phantom powering adapter. Both NS 69 i and CU 48 i feature two 9-position polar pattern selectors, one for each channel, ensuring easy resetability. Both units are equipped with Switchcraft D 3 M chassis mounted receptacles.

Specifications:
NS 69 i Cat.No. 11279 002
Operating voltage

Power consumption
dc voltage output

Ripple (RMS)
Dimensions (w x h x d)
Weight

100...130 V
200...240 V
50/60 Hz
approx. 2 VA
2 x 120 V
2 x 0...120 V
 $\leq 50 \mu V$
125 x 65 x 135 mm
approx. 770 g

CU 48 i Cat.No. 11437 002

Input voltage 2 x 48 V
Current consumption 2 x 0.9 mA
dc voltage output 2 x 60 V
2 x 0...120 V
Dimensions (w x h x d) 135 x 65 x 135 mm
Weight approx. 480 g

CU 48 k
Cat.-No. 11436 008
Mixing console plug-in module,
size B1

Electrical Accessories

CF3 i and CF35 i Signalling Lights

Light signalling units are available for communication between the control room and the recording studio which allow two separate colored light signals to be given. These units have an answer back button which opens the circuit as in the CF3 i, so that all lamps are turned off. The CF35 i provides an additional lamp, for instance in the control room, which can be switched on by means of the answer-back button.

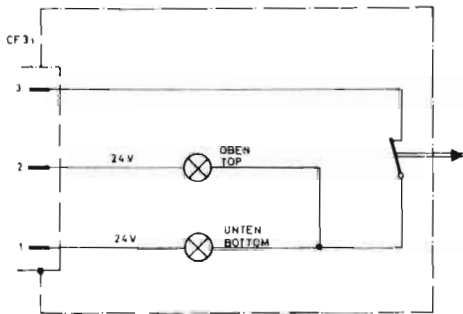
The light signalling units are equipped with 24 volt lamps. The top signal is red, the bottom one of CF3 i is green, of CF35 i white.

Cat. Nos.:

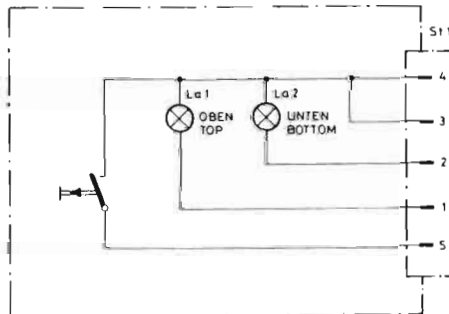
Signalling light	CF3 i	satin nickel	10425 014
Signalling light	CF3 i mt	matt black	10425 032
Signalling light	CF35 i	satin nickel	10425 048
Signalling light	CF35 i mt	matt black	10425 059
Clamp	Z 24	satin nickel	10416 001
Clamp	Z 24 mt	matt black	10416 002
Cable for CF3 i	CC2 i	satin nickel	11311 005
Cable for CF3 i mt	CC2 i mt	matt black	11311 006
Cable for CF35 i	CC25 i	satin nickel	10337 007
Cable for CF35 i mt	CC25 i mt	matt black	10337 008

Standard circuits

CF3 i



CF35 i



CF3 i mt



Z 24 mt

The signalling light may be fastened to any micro-phone stand by means of the Z 24 clamp.

Test adapter

Our MA test adapters are used to replace the capsule of each microphone when testing the amplifier. A test adapter prevents acoustical interference that would come from a capsule. It has the same impedance as the capsule so that the amplifier can be tested under operating conditions giving precise values for power drawn, gain, output capability, and weighted as well as unweighted noise voltages.

If you would like more information on this subject ask for the brochure "MA Test Adapters for Condenser Microphones of the fet 80®-series".
Catalog No. 10000 806.

MA 69 fet	for microphone SM 69 fet	Cat. No. 11460 001
MA 69 U	for microphone USM 69 (i)	Cat. No. 11467 001
MA 84	for microphone KMS 84 (i)	Cat. No. 10470 001
MA 84/82	for microphone KMR 82 (i), KMR 81 (i)	Cat. No. 10470 003
MA 87 A	for microphone U 87 A (i)	Cat. No. 11468 001



MA 84

Z 240 Matrix Transformer

The Z 240 is a highest quality sum and difference (matrixing) transformer supplied and wired in pairs.

It is used for the conversion of stereophonic signals, i. e. of M/S signals into left/right signals and vice versa.

The transformer is Mu-metal shielded.

All winding ends are connected to external soldering lugs.

Technical Data:

Ratio	1 : 0.7 ± 0.7				
Frequency range	40 Hz ... 15 kHz ± 0.3 dB				
Input impedance	≥ 3 kohms				
Induction at 15 kHz	≤ 60 ohms				
Permissible source impedance	≤ 200 ohms				
Input balance at 15 kHz	≥ 60 dB				
Nominal input level	+ 6 dB _u				
Maximum input level	+ 22 dB _u				
Distortion (THD)	≤ <table border="1"> <tr> <td>40 Hz</td><td>6.3 kHz</td></tr> <tr> <td>0.5%</td><td>≤ 0.1%</td></tr> </table>	40 Hz	6.3 kHz	0.5%	≤ 0.1%
40 Hz	6.3 kHz				
0.5%	≤ 0.1%				
Input level = + 22 dB _u , R _{source} = 50 Ohm					
Dielectric rigidity: tested with	500 V, 50 Hz, 2 sec				
Weight	approx. 0.75 kg				



Electrical Accessories

①



XLR 3 F

②



XLR 3 M

③



XLR 5 F

④



XLR 5 M

⑤



DIN 12 F

⑥



DIN 12 M

⑦



DIN 7 F

⑧



XLR 7 F

⑨



XLR 7 M

⑩



Lemo 3 M

⑪



Lemo 3 F

⑫



**DIN 12 F
with
swivel mount**

Cable	Surface	Length	Cat. No.	Connectors	Application
AC 20	satın nickel	1 m	11321 010	⑤ + 2x②	USM 69 i, MTX 191, BS 48 i-2
AC 21	satın nickel	1 m	11321 012	④ + 2x①	Input of BS 48 i-2
CC 2 i	satın nickel	10 m	11311 005	① + ②	CF 3 i, CF 3 i mt
CC 2 i mt	matt black	10 m	11311 006	① mt + ②	
CC 25 i	satın nickel	10 m	10337 007	③ + ⑤	CF 35 i, CF 35 i mt
CC 25 i mt	matt black	10 m	10337 008	③ mt + ⑤	
IC 3	satın nickel	10 m	11311 003	① + ②	KM, KMR, KMS, KU, U 87 Ai, U 89 i, TLM
IC 3 mt	matt black	10 m	11311 004	① mt + ②	
IC 4	satın nickel	10 m	11311 007	⑩ + ②	U 87 Ai, U 89 i, TLM
IC 4 mt	matt black	10 m	11311 016	⑩ mt + ②	
IC 5	satın nickel	0.3 m	11330 005	③ + ④	MTX 191 – BS 48 i-2
IC 5	satın nickel	10 m	11330 003	③ + ④	USM 69 i
IC 5 mt	matt black	10 m	11330 004	③ mt + ④	
IC 6	satın nickel	10 m	11330 001	⑭ + ④	USM 69 i
IC 6 mt	matt black	10 m	11330 002	⑭ mt + ④	
IC 7	satın nickel	10 m	11344 001	⑧ + ⑨	Extension of KT 5 and KT 6
KT 5	matt black	5 m	11343 001	⑦ + ⑨	RSM 191, MTX 191
KT 6	matt black	20 m	11343 002	⑮ + ⑨	
LC 2	matt black	5 m	11341 001	⑩ + ⑪	Extension of LC 3
LC 2	matt black	10 m	11341 002	⑩ + ⑪	
LC 3	matt black	3.5 m	11342 001	⑮ + ⑩	AK + KM100
SC 1	satın nickel	10 m	11301 003	⑤ + ⑥	SM 69 fet + NS 69 i
SC 1 mt	matt black	10 m	11301 004	⑤ mt + ⑥	
SC 6	satın nickel	10 m	11301 001	⑫ + ④	SM 69 fet + NS 69 i
SC 6 mt	matt black	10 m	11301 002	⑫ mt + ④	

* other length on request

⑬



⑭



⑮



⑯



All shown connectors are separately available.

Further cables for special applications, e.g. connection with unbalanced inputs with different jack-connectors are available on request.
The applied cable material was developed by Neumann.
It is highly flexible and shows excellent RF-screening properties due to a double "Reusen"-shielding.

Four different kinds of cable material are available by the meter:

3-pole, diameter approx. 3.4 mm	Cat. No. 83455 01500
3-pole, diameter approx. 5.0 mm	Cat. No. 83455 00004
7-pole, diameter approx. 5.0 mm	Cat. No. 83455 01510
11-pole, diameter approx. 7.5 mm	Cat. No. 83455 00001

Mechanical Accessories

TABLE STANDS

MF 2

Cat. No. 12414

Table stand, solid brass, 0.35 kg, 60 mm \varnothing , with isolation against structure born sound, for all miniature microphones.

The stand is matt black lacquer and does not slip due to rubber attached to the bottom, with thread stud: $\frac{1}{2}$ ".



MF 2

MF 3

Cat. No. 12442

Table stand as MF 2, material iron, 1.6 kg, 110 mm \varnothing , with reversible thread stud with $\frac{1}{2}$ " and $\frac{3}{8}$ " thread.



MF 3

MF 4

Cat. No. 12447

Table stand, grey cast iron, 2.6 kg, 160 mm \varnothing , matt black lacquer, reversible thread stud with $\frac{1}{2}$ " and $\frac{3}{8}$ " thread.



MF 4

MTS 21

Cat. No. 11414 001

matt, nickel-plated

MTS 21 mt

Cat. No. 11414 002

matt black

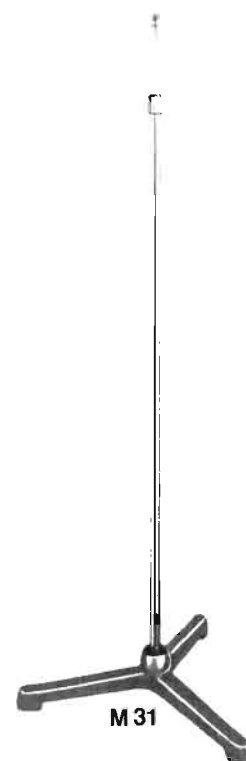
Table stand, tripod type with plastic clamp, 21 mm ($\frac{13}{16}$ ") diameter, for mounting Neumann miniature microphones.



MTS 21



M 32



M 31

FLOOR STANDS

M 31 Cat. No. 12407

Floor stand with tripod, hammertone, lacquered cast-iron base. Weight 4 kg (8 lbs. 13 ozs.). Nickel-plated tube shock-mounted for dampening external mechanical vibrations. Height variable from 1.1 m to 1.8 m (43.3" to 71"). The stand is fitted with a thread stud having a $\frac{3}{8}$ " thread for mounting the microphone.

M 32 Cat. No. 12408

Folding floor stand, weight 2.7 kg (6 lbs.). The length of the folded stand is 0.9 m (35"), its maximum height is 1.8 m (71"). The stand is nickel-plated and has a threaded $\frac{3}{8}$ " stud for microphone mounting.

M 35 Cat. No. 12409 001

Extremely stable folding stand, nickel-plated, weight 9 kg (19.8 lbs.). Maximum height 5 m (16 ft.), minimum working height 1.4 m (55"), length when folded 1.65 m (65"). The stand has a $\frac{1}{2}$ " thread stud for mounting the microphone.

M 135 Cat. No. 12409 002

Similar to M 35, but with a maximum height of 10 m (32 ft. 10 in.). Minimum working height 1.60 m (63"), length when folded 1.75 m (69"). Weight 27.5 kg (60 lbs. 10 ozs.).

G 35 Cat. No. 12409 003

Boom attachment for M 35, nickel-plated, weight 8 kg (17.7 lbs.). Boom extends sideways to 2.5 m (8 ft 3 in.). With $\frac{1}{2}$ " stud on swivel joint.

M 184 Cat. No. 12411 001

Studio boom, on rubber casters, three legged cast-iron base, black wrinkle finish lacquer, nickel-plated tube black lacquered. Adjustable from 1.8 m to 2.5 m (6 ft. to 8 ft.). Boom extends from 1.2 m to 2.9 m (4 ft. to 10 ft.), maximum height when set at an angle, approx. 4.5 m (14 ft. 9 in.). $\frac{1}{2}$ " thread swivelling stud for microphone mounting. Weight approx. 60 kg (132 lbs.).

M 185 Cat. No. 12411 002

Similar to M 184, but its total weight is only 30 kg (66 lbs.).



Mechanical Accessories

FLOOR STANDS

M 210/1

Cat. No. 12410 003

Floor stand with boom attachment, 3.4 kg (7.5 lbs.), nickel-plated. Stand is adjustable in height from 0.9 m to 1.6 m (35" to 63"), boom extends to 0.7 m (27 1/2"). The boom attaches to the 3/8" thread stand stud and has at its end a 3/8" thread stud for mounting the microphone. For all miniature microphones.

M 212c

Cat. No. 12410 004

Boom attachment for floor stand M 214/1. The boom extends from 1.1 m (43.3") to 1.8 m (71"). With counter-weight for heavy microphones. Threaded stud 3/8" for microphone mounting. Weight 4.3 kg (9.7 lbs.). Black and nickel finish.

M 214/1

Cat. No. 12410 001

Folding floor stand, heavy duty. The length of the folded stand is 1.2 m (47 1/4"), the weight is 6 kg (13 lbs.). The height can be adjusted between 2.2 m (87") and 1.3 m (51"). The tripod is black lacquered, the tube is nickel-plated. It has a threaded 1/2" stud for mounting the microphone or the boom attachment M 212c. The floor stand can be supplied together with the boom attachment and is then referred to as **M 212**. This combination is suitable for all microphones.

M 212

Cat. No. 12410 005

M 252

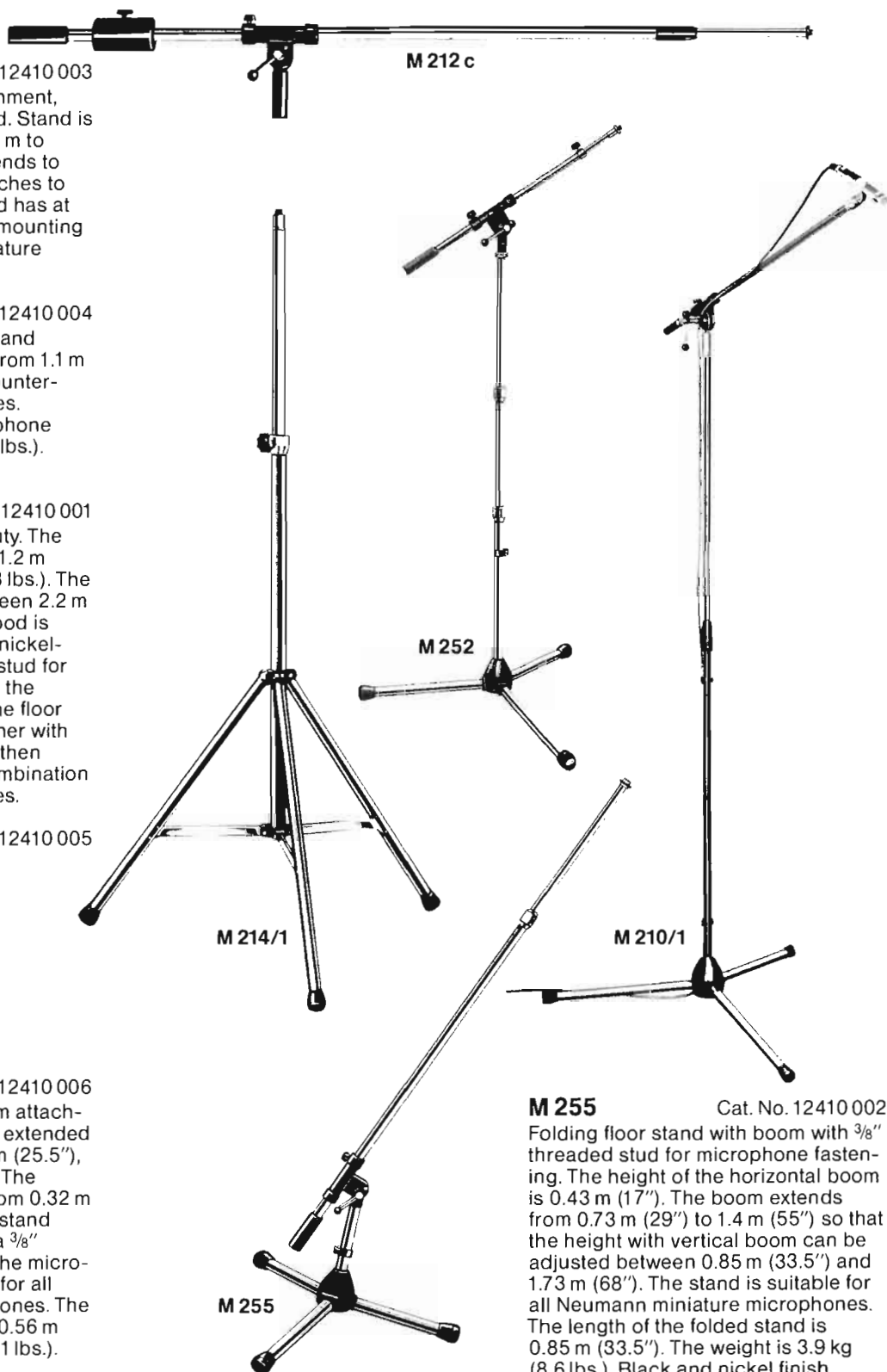
Cat. No. 12410 006

Folding floor stand with boom attachment. The stand tube can be extended twice, minimum height 0.65 m (25.5"), maximum height 1.6 m (63"). The boom attachment extends from 0.32 m (12.5") to 0.64 m (25"). Floor stand and boom attachment have a 3/8" threaded stud for mounting the microphone. The stand is suitable for all Neumann miniature microphones. The length of the folded stand is 0.56 m (22"). The weight is 3.2 kg (7.1 lbs.). Black and nickel finish.

M 255

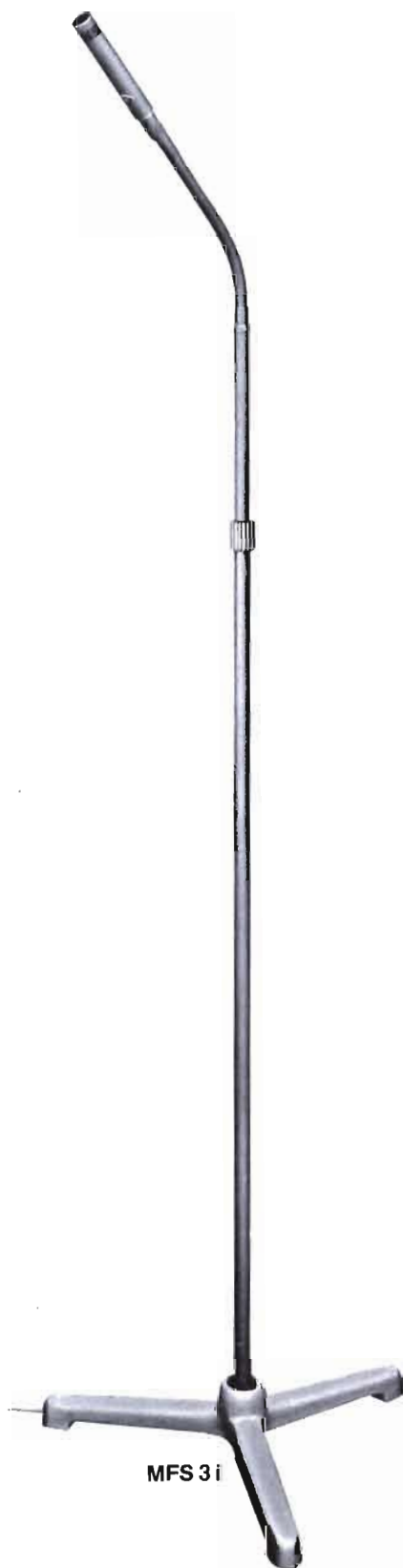
Cat. No. 12410 002

Folding floor stand with boom with 3/8" threaded stud for microphone fastening. The height of the horizontal boom is 0.43 m (17"). The boom extends from 0.73 m (29") to 1.4 m (55") so that the height with vertical boom can be adjusted between 0.85 m (33.5") and 1.73 m (68"). The stand is suitable for all Neumann miniature microphones. The length of the folded stand is 0.85 m (33.5"). The weight is 3.9 kg (8.6 lbs.). Black and nickel finish.





Electrical Accessories



MFS 3 i

Cat. No. 12406 002

Floor stand with gooseneck, weight 5 kg (11 lbs.). The stand has a three-legged cast-iron base with hammer-tone lacquer finish. The upright tube is nickel-plated, and is shock-mounted to its base to dampen external vibrations. Length of the gooseneck is 20 cm (8"); the overall height may be extended between 1.25 m to 2.05 m (49" to 81"). The head of the gooseneck is equipped with a XLR 3 F connector to accept a miniature microphone. The microphone cable is led out at the base, length 10 m (32 ft. 10 in.).



GOOSENECKS

Z13 a

Cat. No. 10360 001 satin nickel

Z13 a mt

Cat. No. 10360 002 matt black

Gooseneck for mechanical mounting of microphones. Length 220 mm (8.66") with 1/2" thread stud and 1/2" female thread at the other end.

SMK 8 i

Cat. No. 10386 010 matt black

Gooseneck with XLR 3 F connector for mechanical and electrical connection of miniature microphones; and with a 5/8"-27 female thread for mounting the gooseneck. Cable outlet through side at threaded end. Cable 4.5 m (14 3/4 ft.) with connector at end. A thread reducer is included which also permits using mountings with 1/2" and 3/8" thread studs. A counter nut screws against the bottom of the microphone, thus providing a certain security against theft.

SMK 5 i

Cat. No. 10386 007 satin nickel

Gooseneck similar to SMK 4 i with XLR 3 F connector, however with coupling nut to connect larger studio microphones U 87 Ai, U 89 i, TLM 170.

SH 3 i

Cat. No. 10385 003 satin nickel

Gooseneck with female and male connectors (XLR 3 F and 3 M) for electrical connection and mechanical mounting of a miniature microphone to the gooseneck.



Mechanical Accessories

MICROPHONE MOUNTS

SG 21/17

Cat. No. 10349 003 satin nickel

SG 21/17 mt

Cat. No. 10349 004 matt black

The SG 21 swivel mount has a plastic clamp with a 21-mm ($1\frac{3}{16}$ ") inside diameter for accepting Neumann miniature microphones. It has a $\frac{5}{8}$ "-27 threaded coupling and a reducing adapter for $\frac{1}{2}$ " and $\frac{3}{8}$ " thread studs. The SG 21/17 comes with a second plastic clamp with a 17 mm ($1\frac{1}{16}$ ") inside diameter, which can be exchanged against the other one, if necessary. It accepts a microphone cable connector (Switchcraft A 3 F, Tuchel or Binder miniature connector receptacle) either of which might be connected to a miniature microphone.



SG 21 mt



MNV 21 mt

MKV

Cat. No. 12404 matt black
Quick-release tilting clamp (plastic) for microphones with body diameters from 17 mm ($1\frac{1}{16}$ ") to 30 mm ($1\frac{3}{16}$ ") with $\frac{3}{8}$ " thread.



MKV

SG 367

Cat. No. 10346 001 satin nickel

SG 367 mt

Cat. No. 10346 002 matt black

The SG 367 swivel mount can be attached to the body of the U 87 A i and U 89 i microphone when it is used with the IC 3 cable. The swivel mount has a $\frac{5}{8}$ "-27 thread for mounting on a microphone stand or boom. A thread reducer for mounting on a $\frac{1}{2}$ " or $\frac{3}{8}$ " thread stud is provided.



SG 367

SG 389

Cat. No. 11329 001 satin nickel

SG 389 mt

Cat. No. 11329 002 matt black

Swivel mount similar to SG 367, however for microphone U 89 i.



SG 389

The swivel mount couplings provided have a $\frac{5}{8}$ "-27 thread. A threaded adapter is supplied to permit these couplings to be used on $\frac{3}{8}$ " and $\frac{1}{2}$ " threaded mounts.
(Catalog No. 8421400180)



MNV 21

Cat. No. 11435 001 grey

MNV 21 mt

Cat. No. 11435 002 black

The MNV 21 auditorium hanger comprises a tilting microphone clamp with an inner diameter of 21 mm ($1\frac{3}{16}$ ") which accepts a Neumann miniature microphone and a cable guide with ring fastener. The MNV 21 allows the microphone tilt to be adjusted with the microphone freely suspended from its own cable.

MNV 87

Cat. No. 11435 003 satin nickel

MNV 87 mt

Cat. No. 11435 004 matt black

The MNV 87 auditorium hanger is suitable for all makes of microphones using a microphone cable with a swivel mount. The MNV 87 consists of a cable clamp and a stud $\frac{1}{2}$ " and $\frac{5}{8}$ "-27 (with threaded adapter) with which it is screwed into the threaded coupling of the swivel mount. The microphone can then be tilted as needed because it is freely suspended from its own cable.



MA Microphone fishpole

Catalog No. 11419 005 (Aluminium)



MA Microphone fishpole

Catalog No. 11419 006 (Carbon- and glassfibre)

	11419 005	11419 006
Length:		
extended	3.145 m	4.21 m
retracted	1.295 m	1.25 m
Weight:	1100 g	500 g
Material:	Aluminium	Carbon- and glassfibre
No. of tubes sections:	3	4
Thread:	$\frac{5}{8}$ "-27	$\frac{3}{8}$ " with adapter $\frac{5}{8}$ "-27

Both fishpoles come with the EA 21/MA elastic suspension for mounting microphones with 21 mm diameter, and with an adapter for mounting the active capsules of the KM 100 system.

For the Fishpole type 11419 006 a swivel mount is available as accessory. The swivel mount permits using the "Fishpole" as a boom. It has a rugged plastic clamp which permits rapid fastening and removal of the "Fishpole". Tilt may be varied between 0° and 180°.

Connector: $\frac{5}{8}$ "-27-thread with reducer for $\frac{1}{2}$ " and $\frac{3}{8}$ " threads.
Swivel mount Catalog No. 82814 00530.

Adapter to connect KM with IC 4

AV 01 Cat. No. 12431 001

AV 01 mt Cat. No. 12431 002

Dust Cover

Cat. No. 8284000 011

A velour-type dust cover is available for Neumann Condenser Microphones. Its size has been chosen so as to fit over all microphones mounted on their microphone stands or booms.



Microphone Cases

Fitted microphone cases are available for each model microphone. These are equipped with a metal look and supportive, formed insert.

Cat. Nos.:

Jeweller's case for AG 82 (i)
Jeweller's case for KMS 84 (i)
Jeweller's case for U 87 A (i)
Jeweller's case for U 89 (i)
Jeweller's case for KMR 81 (i)
Jeweller's case for KMR 82 (i)
Jeweller's case for SM 69 fet
Jeweller's case for USM 69 (i)
Jeweller's case for TLM 170

12405 010
12405 002
12405 003
12405 004
12405 015
12405 014
12405 006
12405 007
12405 016

Mechanical Accessories

Windscreens

To guard our microphones against disturbances, caused by wind, close talking or rapid boom movements, various windscreens are available. The following table shows which models match with which microphones:

Type	for microphone	wind noise suppression approx. dB	Signal attenuation at 15 kHz approx. dB
WNS100	KM100	18	2
WS100		23	4
WS69	SM69 fet, USM69	20	3
WS81	KMR81 (i)	15	2
WSH81		additional 3	additional 3
WK81	KMR81 (i)	24	2
WJ81	RSM190/191	additional 8	additional 3
MSK81	KMR81 (i)	25	14
MSCK81		additional 5	additional 3
WS82	KMR82 (i)	15	5
WSH82		additional 5	additional 6
WK82		25	3
WJ82		additional 8	additional 6
MSK82		25	14
MSCK82		additional 5	additional 3
WS87	U87 A (i)	26	3
WS89	U89 (i), TLM170	27	3
WS191	RSM190/191	10	2
WS86	KMS84 (i)	15	3



WK 81



WJ 81

For special applications of our microphones there are additional Elastic Suspensions and Windscreens of specialized suppliers available. Please ask us.

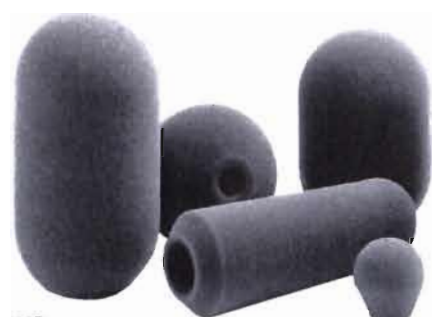
Elastic Suspensions

The use of an elastic microphone suspension is recommended to prevent the microphone from being exposed to mechanical vibrations caused by shock waves. The following elastic suspensions have tilting 5/8"-27 female thread. A thread reducer for 1/2" or 3/8" studs is included.

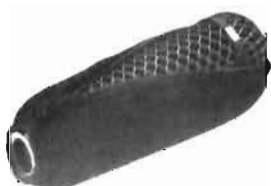
Type	Application	Surface	Cat. No.
EA21	all KM's and KMR81	satin nickel	10448 001
EA21 mt		matt black	10448 002
EA2124	Microphones with 21 + 24mm Ø	satin nickel	11417 001
EA2124 mt		matt black	11417 002
EA30 A	SM69 fet, USM69	satin nickel	10449 003
EA30 A mt		matt black	10449 004
EA30 B mt	RSM191	matt black	10449 006
EA82	KMR	satin nickel	11447 001
EA82 mt		matt black	11447 002
EA89 i	U89 i	satin nickel	12402 003
EA89 i mt		matt black	12402 004
EA170	TLM170	satin nickel	12418 001
EA170 mt		matt black	12418 002
Z48	U87 Ai	satin nickel	10423 001
Z48 mt		matt black	10423 002



EA 30 A mt



WS...



MSK 81/MSCK 81

1. Polyurethan foam	Surface	Cat. No.
WNS 100	black	12443 001
WNS 100	red	12443 002
WNS 100	green	12443 003
WNS 100	yellow	12443 004
WNS 100	blue	12443 005
WS 69	black	11404 001
WS 81	black	12415 001
WS 82	black	12412 001
WS 86	black	12424 001
WS 87	black	11407 001
WS 89	black	12403 001
WS 100	black	11406 001
WS 191	black	12433 001
2. Windscreen covers for WS		
WSH 81 for WS 81	grey	82840 00040
WSH 82 for WS 82	grey	82840 00050
3. Polyester windscreens		
WK 81	grey	12420 001
WK 82	grey	11449 002
4. Windjammer for Polyester windscreens		
WJ 81	grey	12426 001
WJ 82	grey	12427 001
5. Miniscreen		
MSK 81	black	12448
MSK 82	black	12449
6. Windscreen covers for Miniscreens		
MSCK 81	black	12450
MSCK 82	black	13401

EA 30 B mt



STV

Z 26

STAND EXTENSIONS

STV 4

Cat. No. 10387 005 matt black

STV 20

Cat. No. 10387 002 matt black

STV 40

Cat. No. 10387 003 matt black

STV 60

Cat. No. 10387 004 matt black

The STV stand extension accepts a swivel mount on one end and screws into a table stand on the other. The extension is provided with a $\frac{5}{8}$ "-27 female thread and a $\frac{3}{8}$ " thread stud. An adapter for $\frac{1}{2}$ " and $\frac{3}{8}$ " threads is included. Length 4, 20, 40, 60 cm.

Z 26

Cat. No. 10417

The Z 26 shock mount is used to prevent mechanical vibration interference between the stand and the swivel mount. It has a $\frac{1}{2}$ " stud and a $\frac{5}{8}$ "-27 female thread. A thread reducer for $\frac{1}{2}$ " and $\frac{3}{8}$ " threads is provided.



NEUMANN DISK CUTTING EQUIPMENT
NEUMANN MIXING CONSOLES

